PHILADELPHIA MEDICAL TIMES.

PHILADELPHIA, JUNE 26, 1886.

ORIGINAL COMMUNICATIONS.

ON WHOLESOME WATER FOR CITIES AND TOWNS.

Abstract of a Paper read before the Sanitary Conference held under the Auspices of the State Board of Health of Pennsylvania in Philadelphia, May 13, 1886,

BY CHARLES SMART, M.D.,
Major and Surgeon, U.S.A.

SPRING-WATER, uncontaminated by man, is the purest and most wholesome water for domestic use. Rain-water, by percolating through the porous stratum of the earth's crust, loses most of the impurities which it took from the air, and, in turn, in passing through the soil, becomes more or less charged with inorganic gases and mineral salts; but these, so long as they do not interfere with potability and economic uses, are not only harmless, but endue the water with a wholesome sapidity.

The early settler went to the spring for his water or tapped the water-bearing stratum at his own threshold; but this latter mode of obtaining a supply came in time to be attended with the danger of a contaminated inflow. The foully-saturated soil of our growing settlements at the present time renders it imperative that we either go to the springs, like the early settler, or have the spring-water brought to us. In choosing the latter method, a certain deterioration in the quality of the supply is accepted in part-payment for the convenience of tapping the springs on every floor of our houses. The waters of many springs have to be impounded, or those of innumerable springs have to be pumped up from the flowing river. In either case the percolated waters are mixed with a surface-inflow the purity of which depends on the character of the surface which conveys the rain-fall. A strict surveillance over the limited water-shed of impounded springs may protect the supply from all impurities save those precipitated from the atmosphere and the vegetable and mineral matters washed from the surface of the soil. When the water is taken lower down, from the river-current, the impurity is increased, because the larger area of the water-shed cannot be so well protected from the harmful effects of its settlement. Besides vegetable decay and fine mineral particles, a certain quantity of the wastes of human life and human industries will contaminate the supply. Vegetable matter, washed down from the uplands or drained into the current from stagnant ponds, swamps, and marshy bottoms, and animal matters contributed by the sewage of the upper settlements, are the dangerous substances that enter the water-supply derived from the river-current.

The chemist can determine with accuracy the elements of the organic matters in a water; he can in many cases state whether they existed mainly in the form of vegetable or of animal matters, and in certain cases he can point out the existence of recent sewage; but he cannot state whether the organic matter discovered is of a harmless or a deleterious character. Ordinary or non-specific vegetable matters are apparently harmless in water, unless present in such quantity or in such a state of fermentative change as will give an observable taint to the supply. So with ordinary or non-specific animal matters, among which are included those known to exist in what has been called *healthy* sewage. But certain specific organic matters sometimes present are known to be exceedingly unwholesome. These are well-recognized facts. Unfortunately, the chemical processes fail to differentiate between the ordinary and the specific organic matters. The dictum of the analyst is based upon the assumption that where there is a large impurity the likelihood of a specific accompaniment is greater than where there is a small impurity. His results may authorize a verdict of probable unwholesomeness; but in no instance in which the sense of smell or taste is unaffected can he be more explicit on this side of the question, and in no instance whatever can he give an assurance of wholesomeness.

On the other hand, when the laboratory results are compared with the data furnished by a thorough investigation into the sanitary aspects of the case, a new light is thrown upon them by which much of their ambiguity is removed. But by sanitary investigation is not meant a mere survey and enumeration of the sources of polluted inflow, but an inquiry into all the points which bear upon the propagation of disease by the water-supply, and especially of those diseases which the collected experience of the medical profession has in-

dicated as connected with a polluted water. The indigenous diseases thus associated are not numerous. They consist of fevers that are more or less continued and of fevers that are essentially paroxysmal in type,—of typhoid fever and of malarial fevers: the one intimately connected with an *animal* impurity in the water, and the other as intimately connected with a *vegetable* impurity.

The incompetency of the chemical processes to pronounce on the unwholesomeness of a water is more frequently illustrated when animal matter is in question. Waters comparatively free from vegetable impurities have never been accused of malarial possibilities, while waters largely thus contaminated have often been thus charged and adjudged guilty. But a water which has been the apparent propagator of typhoid fever may or may not be found foul on analysis; and waters manifestly foul from sewage-inflow have been used for long periods without producing an injurious effect. The recent records of medicine are full of instances in which a well with sewer or cesspool connections has been used for years with no harmful results so long as the sewage-inflow was small and of an ordinary or non-specific character; but as soon as a specific infection was added the well has become a centre of typhoid propagation. Whether the specific infection is always derived from the intestines of an antecedent case of the disease or is generated in an impure soil under certain conditions is immaterial to the present argument. It is sufficient to know that the infection is present in the typhoid excreta, and that, when any of this infected matter percolates into the well, fresh cases of typhoid fever are developed in susceptible persons who make use of its waters for drinking purposes. Usually in such wells the sewage-inflow is so great that the chemical results show an undesirable contamination; but in many instances the inflow is so small or the purifying influence of the percolation through the soil is so great that the infected water may give a fairly good showing on its analytical record. In other words, the quantity of infected sewage necessary to the spread of typhoid by a well-water is so small as to evade detection by chemical methods, or the influence of a filtration which effects the destruction of ordinary organic matter leaves the specific poison unaffected and in full potency. So well are these facts recognized and acknowledged that the health officers of many cities having a trustworthy general supply have not hesitated to close up the wells within their jurisdiction.

The influence of filtration is very powerful in the destruction of ordinary organic matter. It has been said at the beginning of this paper that the purest natural water is that which has been filtered through a clean soil. The organic matter is reduced to an inorganic condition. It becomes split up into transitional and unstable forms, the changes terminating in the rapid nitrification of a produced ammonia. A water thus purified may yield but little free or albuminoid ammonia on analysis, and even the nitrates that remain to indicate the former sewage-pollution may constitute an apparently trifling quantity; but this water, pure according to the analytical record, may be a dangerous propagator of enteric fever if the sewage that has been destroyed was an infected sewage. The purifying influence does not affect the fever-poison, nor does the filtration remove it.

Now, if the infection of an infected sewage be not separable by filtration, and can withstand the powerful agencies that in the process of filtration destroy the accompanying sewage, will the infection of an infected sewage poured into the current of a river be destroyed by a flow of so many hours in that current? Will that which cannot be separated by filtration be removed by subsidence in a flowing stream which is often manifestly turbid? Will that which is not destroyed by the most powerful of natural purifying influences be rendered inert by the weaker influences operating on the flowing water? If not, river-waters that have been polluted with an infected sewage will communicate typhoid fever as surely as well-waters that have been similarly contaminated,—and wholly irrespective of the results of chemical analysis.

Chemists, looking only at the laboratory results, have announced that the running water becomes purified as it flows, and that at a certain distance below the point of sewage-inflow it becomes again as free from organic matter as it was before the introduction of the contamination. A distinguished authority in this country has spoken with emphasis on this point. "It

should be distinctly stated," he has said, "that there is no foundation in fact for the oft-repeated statement that water once polluted by sewage can never again become safe for drinking purposes. Wherever the pollution and subsequent self-purification of a flowing stream has been patiently investigated, the chemical testimony as to the reality of this self-purification has been convincingly demonstrated." But the conclusions of the English Rivers-Pollution Commission are opposed to this claim. "It will be safe to infer," it is stated, "that there is no river in the United Kingdom long enough to effect the destruction of sewage by oxidation." Nevertheless, self-purification to a certain extent may be accepted as a fact. Dilution, sedimentation, aëration, and nitrification go on in the current, and all tend to improve the analytical record of the water; but the chemical testimony which convincingly demonstrates the reality of this self-purification does not demonstrate the safety of the water for drinking purposes. Dr. Buchanan, of England, summing up the results of a recent investigation, stated that we have no evidence in the case of an unknown water that it is safe organically, although the chemical testimony may place it on the list of waters of extraordinary organic purity; and practically the same conclusion was reached by the investigation conducted in this country by Professor Mallet, of the University of Virginia.

To demonstrate that a water which has been polluted by an infected sewage may again become safe for drinking purposes, it is needful to show that typhoid fever is not a prevailing disease among the people who use it. There are many difficulties in the way of effecting this demonstration, and chief among these appears to be the well-attested fact that typhoid fever does prevail among them, and in many recorded instances has been traced to the water as its source. Witness the epidemic of last year at Plymouth, or the Lauson epidemic, in which the water underwent a thorough natural filtration before propagating the disease. There is no difficulty in showing that typhoid fever prevails among people who use an infected water; but it is often extremely difficult to prove the charge against the water. We may appeal to statistics; but our statistical records are not always trustworthy. The typhoid influence of a general water-supply may be modified by that of a supplemental supply from vitiated wells. Water-carriage is not the only method by which typhoid is propagated. Not long ago sewer-air was regarded as an ever-present cause in our cities; and there seems no doubt that infected exhalations contribute to the prevalence of the disease. Secondary foci from primary cases may give rise by mediate contagion to local epidemics which obscure the influence of a weakly-infected water-supply. Nevertheless, there are some points other than those already mentioned in the natural history of the typhoid poison that countenance the belief in its propagation by contaminated river-water. Typhoid fever differs from small-pox, measles, and scarlet fever in having no cyclical prevalence. It is not a rare clinical study and sanitary anxiety at one time and a prevailing epidemic at another. Where many people are aggregated, its causes are always present and always in operation. But it has a well-developed seasonal tide in its prevalence, which spreads its maximum in this country over the latter half of the third and the first part of the last quarter of the year. Dr. Baker, of Michigan, has shown that in his State this increased prevalence follows a low stage of water in the wells, when sewage-inflow is less diluted than at other seasons. But the same period of prevalence holds good in the cities which have a general water-supply, corresponding with the time when the sewage-inflow into the streams is in like manner undiluted.

Again, in looking at the typhoid statistics of certain cities in which the complicating elements appear to be at a minimum, we cannot fail to be struck by the fact that the prevalence of typhoid-fever is in a measure proportioned to the sewage-pollution of the water-supply. It is to be noted in this connection that although a given sewage may not be an infected sewage, it must be regarded as possessing the elements of danger in view of the general distribution of the fever in rural as well as in urban districts.

Brooklyn, Long Island, has a water-supply perhaps less contaminated with sewage than that of any large city in this country. It has also a smaller rate of mortality from typhoid. Last year twenty-three persons died of this fever in every one hundred thousand of the population.

This is not an accidentally small rate due to the absence of an epidemic during that particular year, for the average annual rate of the last ten years was only a little over fifteen per one hundred thousand. The city of New York has a water-supply that is guarded with much care from sewage-inflow; but it is derived from a much more extensive area than the Brooklyn water. The typhoid death-rate last year was twenty-one, and the average annual rate for the past ten years twenty-six. A constant supervision is exercised over the water-supply of the four millions of people aggregated in the city of London, England; and the mortality-rate of the continued fevers, including typhus, amounted only to seventeen during the past year, while the average annual rate of the past ten years was but little over twenty-eight in the one hundred thousand. These figures may be regarded as a standard of comparison for the rates of other cities.

The water-supply of Boston has a careful superintendence, but it is known to have a certain amount of sewage-inflow. Correspondingly, we find that the typhoid mortality-rates are higher than those already instanced. The rate for 1885 was thirty-eight, and the average of the past ten years forty-three. Cincinnati, supplied by the Ohio River, gives higher typhoid rates: forty-four for the past year, and sixty-three as the average of the past ten years. Philadelphia, supplied chiefly by the Schuylkill, had a typhoid-rate of sixty-four in 1885, and an average rate of sixty-six for the past ten years. These rates for Philadelphia mean that during the past ten years there died of typhoid fever four thousand four hundred persons who would not have died of that disease had the Brooklyn rates prevailed; and that over fifty thousand people suffered from a dangerous and debilitating illness who would have escaped attack had Brooklyn causes operated on them instead of those of Philadelphia.

If the views that have been submitted are correct, we would infer the presence of an infected sewage in the Schuylkill water or the presence in Philadelphia of typhoid causes that do not exist in Brooklyn, New York, or London. According to the records of the Water Department of the city, a notable sewage-inflow has existed since 1860, when complaints were made of the foul taste and odor of the water, and when certain sewers were specially mentioned as occasioning the impurity. A recent report says, "The Schuylkill above Fairmount dam is the natural sewer, first and last, for a population of three hundred and fifty thousand, largely engaged in manufacturing; and, whatever may be the varying judgments of physicists as to the power of a running stream to purge itself of foreign contamination, it is very certain that the river itself has from time to time furnished the most convincing evidence of its inability to digest or dispose of the extraneous and injurious matters discharged into it." With regard to other assumed causes of typhoid, it does not appear that Philadelphia is specially their habitat. The aggregation of susceptible individuals on a given area undoubtedly facilitates the spread of this disease; but the area of Philadelphia is less crowded than that of most cities of its size,—certainly less so than that of New York or London. The progress of sewer-construction has kept pace with the growth of the city. It has been demonstrated by many statistical comparisons that the introduction of a system of sewerage has invariably lessened the death-rate of a city, and particularly the rate occasioned by the zymotic diseases; yet Philadelphia, so far as regards typhoid fever, retains or even exceeds the rates that prevail in certain unsewered cities.

The following table shows in parallel columns the annual death-rate from typhoid fever per one hundred thousand of the population in the sewered city of Philadelphia and in the unsewered cities of Baltimore and New Orleans. The rates for each of the past twenty years are given, yielding an average for Philadelphia, 61, slightly lower than that for Baltimore, 65.4, and considerably larger than that for New Orleans, 33. When we restrict our inquiry to the rates of the past ten years, it is found that Philadelphia has a higher mortality than either of the two other cities, 66.1 as compared with 52.5 and 24.6. The soil of Baltimore is honeycombed with pits and vaults of deposit; and although the city has had a general water-supply for many years, the well-water supply has been used to a considerable extent. I have but little personal knowledge of the character of these well-waters. In 1879 I examined one of them situated in the enclosure of the Johns

Hopkins University. It was rather a rank ammoniacal solution than a potable water. The use of such waters may be held in view in regarding the rate of the first of these periods of ten years. In 1880 an additional supply was brought into the city from the Gunpowder River, and perhaps the consequent disuse of contaminated wells may account for the lessened frequency of typhoid of late years. At the present time there are sixty-two public wells in use, thirteen of which are artesian. All the others have been condemned and closed. There are, however, many private pumps which are not under the control of the Health Commissioner. These, with a trifling amount of sewage-inflow into the waters of Jones's Falls and the Gunpowder River before they reach the storage-lakes, may be held responsible for the typhoid prevalence at the present time. The sanitary condition of New Orleans will be referred to hereafter.

Annual Death-Rates from Typhoid Fever per One Hundred Thousand of the Population in

	Philadelphia.	Baltimore.	New Orleans.
1866	60	80	65
1867	57	94	66
1868	60	65	31
1869	56	80	34
1870	61	99	42
1871	45	73	37
1872	52	65	34
1873	50	82	29
1874	62	83	47
1875	55	62	28
Annual rate for the decade	55.8	78.3	41.3
1876	98	60	26
1877	68	75	33
1878	50	55	21
1879	41	51	15
1880	59	59	24
1881	74	58	30
1882	73	47	33
1883	63	36	23
1884	71	42	25
1885	64	42	16
Annual rate for the decade	66.1	52.5	24.6
Annual rate for past twenty years	61.0	65.4	33.0

In a valuable article, read last year at the Ypsilanti Sanitary Convention, Dr. Erwin P. Smith has tabulated many of the statistics bearing on the lessened mortality from typhoid coincident with the introduction of a general water-supply and a system of sewerage. These are usually contemporaneous improvements, but the removal of the filth by water-carriage constitutes so notable a change in the sanitation of the municipality that the influence of the water-supply is generally regarded only in so far as it has contributed to that end. Nevertheless, it is a question if the water-supply *per se* be not a more important factor in the subsequent decrease of sickness than the system of sewerage. On its introduction the water is usually of excellent quality. It takes the place of dangerous waters from the subsoil of the city, and contributes proportionately to the typhoid diminution. But, later, as the water-supply becomes defiled by the growth of settlements on the area of its derivation and along its course, it may become as much charged with dangerous matters as the well-waters which it supplanted.

To what extent the Schuylkill water-supply is responsible for the typhoid rates of Philadelphia is not for me to indicate. Due consideration must be given to all the other influences that are known to favor the propagation of the disease. One of these, the subsoil water, still operates to a considerable extent, although the Board of Health has taken action against it and directed the closure of the wells. Dr. Leffmann, in a recent paper, suggested that the irregularity of the distribution of the deaths from typhoid throughout the city is opposed to the idea of typhoid propagation by the Schuylkill supply; but local epidemics originating in infected wells may account for this irregularity without excluding the possibility of a generally diffused but less marked prevalence. It does not appear that in New York City the disease is confined to any particular locality; its distribution is general; and the maps of the health-officer of Washington City show an indiscriminate scattering of the deaths over the populated areas.

One other argument in favor of the connection between a sewage-polluted water and the prevalence of typhoid may be derived from the recorded statistics of mortality. If it were possible to build a city with all the insanitary conditions, whatever they may be, that underlie the surface of Philadelphia, and to supply that city with water certainly free from sewage, a death-rate from typhoid in this supposed city equalling that of Philadelphia would throw the causation of the disease upon other agencies than the water-supply; and, correspondingly, a comparative freedom from typhoid in the supposed city would strengthen the argument in favor of a water-propagation for the disease in Philadelphia. Such a city cannot be built to order, but, fortunately, New Orleans presents us with many of the essentials of an

experiment of this kind. New Orleans has no sewers: all its liquid filth flows sluggishly in open channels by the sidewalks; its more solid refuse is collected in boxes in closets and out-houses, whence it is carried to the current of the Mississippi; the subsoil-water is so impregnated with drainage from the surface as to be unfit for potable use; and the exhalations from the sluggish drains, the closets, and out-houses not unfrequently taint the air in many parts of the city. Here are conditions as to subsoil and surface which would be regarded as accounting sufficiently for an extensive prevalence of typhoid, were it found to be present. Certainly they must be considered as more conducive to the spread of zymotic disease than the corresponding conditions of subsoil and surface in Philadelphia, for the general results of modern sanitation show a sewered city to be a healthier abode than one that is not sewered. But this city of New Orleans has a water-supply that is free from sewage-inflow. The Mississippi water is pumped up mainly for use in flushing the streets and drains, while the domestic supply consists of rain-water collected and stored in cypress-wood cisterns which are raised above the suspicion of a contamination by sewage; and the typhoid mortality, 16 during the past year, and 25.6 as the average of the past ten years, is as low as the standard rates furnished by the cities of New York and London.

May we conclude from these arguments that the inflow of sewage into a stream is fraught with too many dangerous associations in connection with typhoid fever to warrant the use of its water as a general supply, no matter how convincing may be the chemical testimony as to its organic purity? Whatever other modes of typhoid propagation may be allowed, that from the sewers or vaults, which are the "continuation of the diseased intestines," is incontestable. The influences operating on the flowing water do not destroy the essence of disease, nor, as shown by the history of every infected well, does the process of filtration effect the separation of the poison. The advocates of sewage-irrigation become enthusiastic over the clearness and purity of the water that flows from their under-drains, and suggest that the general use of this system for the disposal of sewage would reclaim our polluted streams and permit them to be again used with safety for household purposes. But the essence of sewage-irrigation is filtration, and filtration through a notoriously polluted soil. The unwholesomeness of a well-water in a soil saturated with sewage has been so often illustrated that we may well be excused for showing some hesitancy in accepting the effluent water of sewage-irrigation as a general household supply. The adoption of this system of irrigation would undoubtedly prevent our streams from becoming open sewers, but here the advantage ceases. So long as we know that not sewage, but a sewage-polluted mountain-stream used for irrigating purposes in one valley occasioned a general outbreak of virulent typhoid among the inhabitants of another valley who had used the clear water of the effluent, we must acknowledge that filtration cannot be trusted to render an infected water safe. Hence, if the conclusion above suggested be admitted, the only method by which typhoid communicated by a general water-supply may be avoided is to procure a supply of water that is free from sewage, and preserve it in its condition of natural purity.

The vegetable matters in a water appear to be dangerous in proportion as the water exhibits the usual characteristics of marsh or swamp waters. The organic matter in these is comparatively large in quantity, and contains a larger proportion of carbon combined with its nitrogen than is found in animal matter. This is shown in the laboratory by direct analysis or indirectly by the large quantity of oxygen that is required to oxidize a matter yielding a relatively small quantity of albuminoid ammonia. The microscopic life in these waters is of an elementary form, consisting largely of sluggish protoplasmic masses. Remittent fevers have been frequently associated with the use of such waters. But it does not follow that these vegetable matters in themselves constitute the essence of malarial disease. The accepted theory is that organic matter during its decomposition, under certain conditions in the soil, evolves a noxious miasm. This miasm escapes into the atmosphere, and its subtile influence is felt at considerable distances from the place of exhalation. It is known to be condensed and concentrated by fogs and falling moisture, and it seems probable that even the rain-fall is not free from a taint of this impurity among the other impurities which it washes from the atmos-

phere. But the chief source of a malarial contamination in our surface-waters is their contact with an exhaling soil. Hence, although a malarious water may exist without an associated charge of vegetable organic matter, it usually contains a very notable quantity; and this quantity may be regarded as an index of the malarial possibilities of the water.

The propagation of malarial diseases by means of the drinking-water has of late years been generally accepted by the profession. Proof was difficult to obtain because of the long-continued and unquestioned acceptance of the doctrine of an aerial miasm. When the requisite spot of malarious soil was not present to account by its exhalations for some obscure or anomalous case, the existence of such a spot was assumed, for it seemed more plausible to suppose that the malarious locality had escaped recognition than that the time-honored doctrine was inadequate to explain all the cases. But when attention was directed to these obscure cases they were found to be very numerous. They were common in all our Western territories on elevated grounds, where there was apparently no source of malarial exhalations, and these cases were always of a serious character,—remittent fevers rather than simple agues. They were common also in our large cities, where drainage and cellarage gave a dry subsoil and the surface was more or less sealed by street-paving: and these cases also were of a remitting or subcontinued form. They were common in certain districts of the country in the winter season, when the theory of a malarial miasm exhaled into the atmosphere and inhaled into the lungs was inconsistent with their existence, inasmuch as the frosts of the season or a thick covering of snow should have imprisoned all such exhalations: and these cases also were found to be severe rather than mild. But in all these instances of serious malarial disease without malarious soils to account for them the drinking-water used was not above suspicion, and in many the prevalence and aggravated character of the sickness were proportioned to the amount of vegetable impurity in the water. On the assumption that the water was impregnated with the malarial essence, these obscure cases ceased to be obscure. But this is not an assumption, for there is a ground-work of observations to support it as solid as that which sustains the theory of aerial transmission. Many years ago a well-known medical investigator reported the occurrence of pestilent malarial fevers among troops on a transport that had been supplied with marsh-water. The evidence was so strongly guarded at every point that no doubt could be entertained as to the causation of the fever among these men. Since then dangerous fevers have frequently been referred, on more or less satisfactory testimony, to malarious surface-waters; and it is notable that the disease when introduced in this way is always of a more aggravated type than when caused solely by exhalations,—the poisonous water appearing in a general way to be a more concentrated and deadly agent than the poisonous air. Moreover, and this is of grand importance from a preventive point of view, the prevalence of these fevers has decreased with an improvement in the water-supply. The remittents of our Western territories have declined in frequency and virulence since the country became settled and a better water-supply was found than that of the ponds, ditches, and tanks used by the early overland traveller and settler. The evidence from India is very explicit on a similar decline of the pestilential fevers. Recent reports from some of the most unhealthy districts show an extraordinary change in the insalubrity of the country coincident with the procurement of a supply of drinking-water from deep and carefully-protected wells. Along the base of the Himalaya Mountains is a broad strip of marsh- and forest-land called the Terai, which for many years has been uninhabitable owing to the prevalence of malarial fevers. Continued efforts were made by the government to reclaim and populate this tract, but with only partial success. The strife between enterprise and malaria was carried on, but at the expense of a fearful sacrifice of human life, until recently, when the construction of deep masonry wells has permitted positions to be held which a long experience had pronounced uninhabitable. The natives have for ages believed in the transmission of the fever by means of the surface-water, and this belief has at last been accepted in its entirety by the governnent, and, as reported, with beneficent practical results. Villages that were formerly unhealthy have ceased to be so, and the change has been sharply defined and contemporaneous with

the construction of masonry wells. These experiences fully support the evidence brought by Professor Parkes from the Crimea, to the effect that the villagers there who drank surface-water had fever all the year round, while those who drank well-water had fever only in the summer and autumn.

All the observations and arguments hitherto advanced in favor of the transmission of malarial disease to the human system by means of the water-supply have equal force on behalf of filtering the surface-waters that are to be used for drinking purposes. In no instance has malarial disease been traced to the use of a well-water untainted by a direct inflow from the surface. Dangerous malarious waters from marshes and other soils rich in vegetable decay leave their noxious constituents behind them in percolating through the soil, and appear in the well as pure and non-malarious waters. Filtration is therefore capable of removing from a surface-water the essence of the remittent fevers that may be present in it.

This brief review of the pathogenic relations of the animal and vegetable matters that find their way into our running streams, under the conditions of the present time, teaches us how a certain proportion of the sickness and mortality now prevalent in our growing settlements may be avoided. Spring-water issuing from an unsullied soil is destitute of morbific qualities. Nature is bountiful, and provides for all the needs of creation in the cyclical repetition of her processes. The waters rise from their great storehouse under the influence of the solar heat. They pervade the atmosphere, and, massing from time to time, are precipitated, carrying with them the accumulated impurities that would otherwise soon render the aerial ocean turbid and unfit for the support of life such as ours. They flush the surface of the earth, freshen its verdure, and carry into the rivers all the detritus of animal and vegetable life. The river-water is nature's sewage, and its destination is the ocean. The rain-water becomes impure in carrying out the purpose of its fall in the economy of nature, but all its impurities are removed from that part of it which penetrates the soil to feed the springs. The experience of all the ages testifies to the purity and desirability of the spring-supply. When the Israelites were famishing in the Wilderness they obtained manna from heaven, but their water-supply came from the rocks of Massah and Meribah when struck by the rod of Moses.

Under the conditions of our modern civilization it seems impossible to bring the spring-water in its pristine purity to our homes; but it is only a question of money and an intelligent and watchful superintendence to have a water which will be its equal in wholesomeness. Animal matter, with its typhoid possibilities, must be excluded by the selection of a suitable source, the area of which must be afterwards protected to the full. But the most careful surveillance will fail to exclude the malarial possibilities associated with the vegetable matter of an otherwise healthful surface. To remove these, nature's process of filtration must be imitated. Thus only will a water be obtained free from the danger of typhoid fever on the one hand, and of malarial disease on the other,—a pure, clear, and wholesome supply, which, by preserving the community from unnecessary sickness, will in a short time amply repay the expenditure involved in its introduction.

REPORT ON THE PROGRESS OF OTOLOGY.

BY CHARLES H. BURNETT, M.D.,
Professor of Otology, Philadelphia Polyclinic.

THE MEMBRANA TYMPANI: PHYSIOLOGY AND PATHOLOGY.

KAUFMANN has published three cases in which the respiratory movements of the membrana tympani were plainly visible (*Wiener Med. Presse*, p. 183, 1885). The cases were observed in Zaufol's clinic in Prague. Some experiments with Marey's instrument yielded a number of interesting tracings. In all three cases the act of inspiration was accompanied by a negative excursion of the membrane, that of expiration by a positive movement. The tubes were pervious in all, and in none was the excursion of the membrane accompanied by a simultaneous movement of the velum palati. According to Kieselbach (*Monatsschr. f. Ohrenh.*, No. 1, 1885), pressure made by means of Siegel's otoscope upon a very movable membrane and hammer produces a state of affairs similar to that produced by partial press-

ure on a membrane stretched loosely over the opening of an air-tight vessel: while the portion pressed upon sinks in, the remainder of the membrane becomes prominent. This protrusion is best seen in atrophic portions or cicatrices, these rising above the remainder of the membrane. (*Archives of Otology*, vol. xv. p. 93.)

Keller records a case of an engineer, 25 years old (*Monatsschr. f. Ohrenh.*, No. 1, 1885), who was hurled several feet and rendered unconscious for ten minutes by the force of an explosion of gas while he was examining a boiler. A few days later there was noticed a profuse discharge from the left ear, accompanied by deafness and great dizziness. Both membranes were ruptured in their anterior halves. The deafness gradually increased.

Miot (*Revue mensuelle de Laryngol.*, No. 4, 1885) gives a clinical history of a lady affected with chronic inflammation of the left middle ear, from whose right ear, a normal one, a physician endeavored to remove a plug of cerumen by forcible syringing with warm water. This was followed immediately by loss of consciousness, lasting five minutes, by permanent tinnitus and persistent pain. A purulent discharge set in from this ear in the course of a week, and the hearing in the left ear grew worse. This was followed by vertigo, disturbances of muscular co-ordination, insomnia, faulty nutrition, and suicidal impulses. Miot ascribes these symptoms to a violent hyperæmia of the labyrinth complicated by a slight sanguineous apoplexy. (*Archives of Otology*, vol. xv. p. 94.)

THE USE OF COCAINE IN THE NOSE AND EAR.

Zaufal's experience (*Prager Med. Wochenschr.*, No. 7, 1885) leads to the confirmation of the good effects of cocaine in reflex neurosis of nasal origin. The use of cotton plugs soaked in a five-per-cent. solution of cocaine in a severe case of acute coryza produced marked relief, permitting freer nasal respiration, and checked the nasal secretion. The course of another case of coryza was entirely checked by one application of a five-per-cent. solution. The use of cocaine in a third case provoked a severe attack of coryza.

The anæsthetic effect of cocaine upon the external meatus is by no means as certain and striking as when used upon the nasal or pharyngeal mucous membrane. It must be borne in mind, however, that the effect of cocaine is modified by the fact that the sensibility of the membrane varies materially in different individuals, both physiologically and in pathological conditions. This author has observed a decided analgesic action of the drug in only five cases of acute inflammation of the middle ear. The use of cocaine will prove beneficial in controlling pain in acute myringitis and acute otitis media. The application of a twenty-per-cent. solution in furunculosis of the external meatus will reduce the sensibility sufficiently to permit pressure on the outer ear, traction on the auricle, and mastication without pain. (*Archives of Otology*, vol. xv. pp. 97, 98.)

Kirchner, by brushing the membrane with a ten-per-cent. solution of cocaine, reduced its sensibility sufficiently to make a free incision in a case of purulent otitis media without producing pain. (*Deutsche Med. Wochenschr.*, No. 4, 1885.) In similar applications it rendered paracentesis in thickening of the membrana, sections of the anterior and posterior folds, tenotomy of the tensor tympani, and division of the handle of the hammer near the short process almost painless; while in other cases it seemed to have no such effect. The variable action of cocaine induces Kirchner to advocate the use of a twenty-per-cent. solution in operations on the drum-membrane. (*Archives of Otology*, vol. xv. p. 97.)

Baratoux has used cocaine with very good results in the removal of nasal and aural polypi, in galvano-caustic applications to the tubes and to the nares, and in opening abscesses in the external auditory meatus. Paracentesis of the drum-membrane was painlessly performed a few minutes after introducing a five-per-cent. or a ten-per-cent. solution into the drum-cavity, and at the same time instilling some into the external meatus. When used in ten-per-cent. or twenty-per-cent. solutions in the nares in acute coryza and otitis, it may impair the senses of taste, smell, and hearing. It is said that a one-per-cent. solution will diminish the secretion in nasal catarrh and catarrhs of the middle ear. (*Archives of Otology*, vol. xv. p. 98.)

Stein considers cocaine a valuable anæsthetic in facilitating catheterization, in allaying pain in acute otitis media, and in

the removal of aural polypi. He also claims to have observed its good effect in diminishing suppuration in uncomplicated cases of middle-ear inflammation. (*Archives of Otology*, vol. xv. p. 98.)

Lange's experience induces him to discourage too sanguine expectations regarding cocaine as a local anæsthetic. In looking over the literature of this subject, the great discrepancy in the strength of the solutions used by European and American observers is striking. This is attributed to a difference in the qualities of the drug, to the age of the watery solution, to the manner of its application, to the part of the body to which it is applied, and to the individual susceptibility to the action of the drug. He has derived some success from a ten-per-cent. solution, and he expresses a hope that more extended observations establishing indications for its use and proper mode of application will enhance its possibilities. A reduction in the price of the drug is a determining factor. (*Archives of Otology*, vol. xv. p. 98.)

TUBERCULOSIS OF THE MIDDLE EAR.

The investigations of Habermann (*Praeger Zeitschrift für Heilkunde*, Bd. vi.) upon tuberculous infection of the middle ear are reviewed by Kretschmann in the *Archiv f. Ohrenh.*, Bd. xxiii. p. 157. The occurrence of tubercular processes in the organ of hearing, long since considered highly probable, could be proved only by the discovery of the tubercle-bacillus in the tissues of the ear. The bacillus had been found in the secretions from the ear by many, but Habermann found bacilli also in the aural tissues.

In twenty-five subjects examined post mortem, it was found five times. In all five of these pus was found in the antrum and in the tympanic cavity. In four cases there was a perforation of the membrana tympani. In every instance the pus contained more or less bacilli. The mucous membrane of the drum-cavity was swollen in nearly all portions, and at places it was deprived of its epithelium. It also showed small-celled infiltration, with disseminated aggregations of giant-cells and tubercle-bacilli in varying number. In some cases undoubted tubercle was found devoid of bacilli. Similar conditions were found in the mucous membrane of the antrum and of the tympanic end of the Eustachian tube. The bone was eroded at some points, especially in the region of the promontory. In one case the inner ear was affected. Granulations were here found in the lowest whorl of the cochlea, which contained giant-cells and bacilli. From this point the morbid process passed to the acoustic nerve. Aggregations of tubercle-bacilli were also found in the descending part of the facial nerve, which had been paralyzed during life.

Upon the strength of his investigations, Habermann concludes that the process begins in the mucous membrane and thence passes to the deeper tissues. For the occurrence of tubercle in the middle ear three explanations are given.

1. Bacilli may gain access to the middle ear from the air through perforations in the membrana tympani. But this would be admissible as explanation in cases of perforation of the membrane; yet in one case of those reported there was no perforation.

2. The author admits the possibility of infection by the circulation, but considers this mode very doubtful.

3. The most probable explanation, according to the author, is what may be termed the mechanical mode,—viz., by the entrance of tubercular matter through the Eustachian tubes, usually widened in tubercular subjects, just as intestinal tubercle is caused by swallowing tuberculous sputa.

THROMBOSIS OF THE LEFT TRANSVERSE SINUS, CONSEQUENT UPON CHRONIC PURULENT OTORRHŒA.

A case is related by E. Bull (*Archiv f. Ohrenheilk.*, Bd. xxiii. p. 161) of a young man, 16 years old, otherwise healthy, who had suffered four or five years from a discharge from his left ear, when he was suddenly attacked with intense frontal headache. In the course of two weeks there was developed a condition of irritability to all external disturbances, delirium at times, thirst, anorexia, difficult urination, diarrhœa, with rigors. At the time of his admission to the hospital the patient complained of headache, and there was an extremely offensive, purulent discharge from the left ear. His skin was dry and hot, and his face slightly cyanotic; pulse 120. His pupils were moderately dilated and sluggish. There were also signs of meningitic tache. His tongue was dry and encrusted with sordes; respirations 48, labored, and he coughed now and

then. He lay upon his right side, with his legs drawn up, and his eyes closed. The carotids beat violently, and there were strong muscular contractions, intense sensitiveness of the skin, and occasional trembling of the entire body. The urine was normal, and the belly indolent. No change of any moment occurred in these symptoms, and in three days he died, the diagnosis being meningitis.

The post-mortem examination revealed a thrombosis of the left lateral sinus, and of the jugular vein as far as the clavicle, and the lumina of both vessels filled with discolored pus. The meninges were softened and dotted with elevated ecchymoses, especially on the base of the cerebral lobes. There was a watery fluid in the cranial fundus.

The tegmen tympani was softened and perforated with minute openings, and the overlying dura mater, with the corresponding part of the cortex of the left temporal lobe, was discolored. There was pneumothorax on the left side, from perforation at the upper lobe of the lung, and copious metastatic aggregations in both lungs. The bronchial glands and the spleen were softened.

EAR-DISEASES IN LEUKÆMIA.

The observations of Politzer and Godstein upon this subject are further confirmed by those of Blau, of a case in his own practice (*Archiv f. Ohrenh.*, Bd. xxiii. p. 169). A young man, 36 years old, who had been suffering a little while from leukæmia, developed aural symptoms as follows. At first there was vertigo, which became intense in the course of three days, being attended at last with nausea, vomiting, ringing and pounding noises in the ears, and deafness. Under ice-treatment the vertigo disappeared in six days, but the gait remained unsteady and subjective noises were still present. In the course of some weeks a greater deafness was noted, and there was also pain in the left ear.

Dr. Blau now saw the patient for the first time. He found absolute deafness in the left ear, and on the right side catarrh of the middle ear. The air-douche and alterative drugs improved the hearing somewhat on the right side; but the duration of this improvement was short, because of an attack of labyrinth-disease, which in the course of a few hours entirely destroyed the hearing in the right ear. Nevertheless, there ensued gradually some improvement in the hearing in the right ear, until an attack of subacute catarrh with perforation of the membrana tympani, which healed, but was followed in a month by a similar attack, in which the perforation also healed quickly. With improvement of the general health there ensued a partial restoration of the hearing on the right side, so that moderately loud speech could be heard close to the ear.

CAUSES OF DEAF-MUTISM.

In considering the causes of deaf-mutism, Boucheron (*Revue mensuelle de Laryngologie*, No. 4, 1885) shows that naso-pharyngeal diseases form an important factor in the pathogeny of infantile deafness followed by mutism. The deaf-dumbness developing suddenly after birth is characterized either by the presence of meningitic or epileptiform symptoms, or by an absence of convulsive symptoms, and can therefore be divided into two categories. In both instances the deafness arises from an anæsthesia of the nerve-filaments, the result of an increased intra-labyrinthine pressure. Subsequently a destruction of the acoustic filaments takes place. Boucheron suggests for it the name of "deafness due to otopiesis,"—*i.e.*, to pressure within the internal ear. Experimental studies made upon dogs have caused the author to regard occlusion of the sieve-like arrangement within the aqueductus vestibuli, the safety-valve which normally prevents the occurrence of intra-aural pressure, as the most important cause of the latter. Three forms are spoken of by Boucheron,—viz., "otopiesis pseudo-meningitic," "otopiesis pseudo-epileptic," and a simple form of otopiesis. The first form is subdivisible into the inflammatory and the non-inflammatory. Examination of the ear with the mirror generally shows a normal appearance of the external ear and membrana tympani, or the latter retracted simply, the color remaining normal. An exacerbation of the naso-pharyngeal catarrh which is almost always present will, however, often produce a sudden reddening of the membrane, with marked hyperæmia of the handle of the hammer.

Extensive destruction of the membrana tympani and the ossicles, and caries or necrosis of the temporal bone, are comparatively rarely seen in deaf-mutes. Naso-pharyngeal affections and catarrhs of the Eustachian

tubes and middle ears are common among deaf-mutes, and they have great effect upon the chief condition by their frequent relapses. The author very justly declines to regard the deafness occurring in the offspring of consanguineous marriages as a result of race-degeneration, but rather as an additional circumstance of an inherited catarrhal predisposition,—a view entirely in harmony with the experience of your reporter. He also believes true congenital deafness to be a much greater rarity than heretofore supposed.

The treatment should, "first of all, have in view the prevention of the formation of a vacuum in the tympanic cavity; secondly, the restoration of the mobility of the drum-membrane and ossicles, especially the stapes; thirdly, measures to overcome the inherited catarrhal tendency and the tubal catarrh; fourthly, stimulation of the anæsthetic labyrinthine nerves; fifthly, education of the hearing sense after it has been sufficiently restored to perceive speech; sixthly, instruction by artificial methods should no improvement take place or power of hearing prove insufficient." (*Archives of Otology*, vol. xv. p. 96.)

A CASE OF ENORMOUSLY-ENLARGED HEART WITH PATENT FORAMEN OVALE, ILLUSTRATING THE LAW OF COMPENSATION.

BY R. LEAMAN, M.D.,

Demonstrator of Clinical Medicine in the Jefferson Medical College.

SIR CHARLES BELL first called attention to the fact that during every violent act of expiration, whether in weeping, coughing, laughing, or sneezing, the eyeball is firmly compressed by the fibres of the orbicularis muscle, thus defending the vascular system of the interior of the eye from the retrograde impulse communicated to the blood in the veins at the time. For, when the chest contracts in expiration, the blood necessarily dams up in the veins of the neck and head. Were the eye not properly compressed at this time, thus offering a resistance to the shock, irreparable injury might be inflicted upon the delicate textures of its interior.

Darwin noticed the same compensating process in a young orang and chimpanzee to whom he gave snuff. Among these physiological compensations none are more striking and remarkable than those among the special senses. Let the sense of sight be destroyed, and how marvellously the other senses struggle to overcome this unwonted deficiency! A most marked acuteness soon becomes manifest in the sense of hearing, of the tactile perceptions and judgments, and of the muscular sense. The blind have almost universally fine musical tastes. They are also able to follow certain pursuits and occupations. They are able to construct beautiful specimens of beadwork, intermingling at the same time beads of various colors so that artificial figures are produced, and they are enabled to do this because these beads of different colors possess different minute points of prominence not distinguished by the uncultivated finger, yet sufficiently distinct to be recognized by them and thus classified.

There is a blind organist in one of the prominent churches of our city who as a musician has few equals, and who as he feels over the numerous stops of the large instrument upon which he plays illustrates most exquisitely the law of which we speak. If there be not a muscular sense in the economy compensating in some measure for the loss of sight, there is something so akin to it that to speak of anything else would be to claim a difference without making a distinction. Unerringly, as though guided by the most perfect sight, this individual will draw upon the correct stop at the proper time, whilst, with the other hand upon the key, he still continues the melody of the piece he is playing. Something outside of what are usually regarded as the organs of special sense must tell him of his position in space and cause him mentally to see his position in space in relation to the instrument upon which he plays. Long practice has so perfected his muscular sense that unconsciously and unerringly his mind appreciates the precise amount of muscular effort required to execute a certain movement. Through a somewhat similar process it is supposed that the deaf are enabled to appreciate rhythm and tone.

We know that beyond the sphere of intellection there exists in all parts of the body, the lowest as well as the highest, a so-called sympathy,—a sympathy which leads to compensative actions, sometimes beneficial, sometimes deleterious, and which moves in such a self-directed manner

as seems to rival consciousness itself. How remarkable the constancy with which the body, under varying conditions and climates, retains an almost equable temperature! Again, diseased states continually offer a fertile field for the study of this law of compensation.

It is said that when Edmunds Crisp first announced before the Pathological Society of London the fact that fatty degeneration of the heart was "a preservative lesion," his voice was silenced by bursts of derisive laughter. The truth of this assertion was, however, soon accepted by the Society, after having followed the process of all reforms in thought,—namely, first ridicule, then discussion, then adoption.

The fact was soon recognized that, if a heart acting with the force of youth propel blood into degenerated arteries, fatal consequences will most promptly follow.

Likewise in failing heart, the bronchorrhœas, and self-instituted diarrhœas, are but natural efforts for relief, and must not be too hastily interfered with.

On the other hand, the general thickening of the walls of the smaller arteries which is so frequently associated with the atrophic form of chronic Bright's disease, induces that hypertrophy of the left ventricle, which is compensative at first, but later often gives a sudden termination by causing the rupture of some blood-vessel. Compensative action here induces a lesion which is not a preservative one, but one non-preservative in its results.

Some weeks ago I made an autopsy upon the body of a man and found the following conditions. A heart weighing thirty-three ounces, with incomplete closure of the foramen ovale, atheromatous thickening upon the aortic valves, and dilated ventricles. Liver was a typical specimen of red atrophy; kidneys somewhat large, but otherwise normal; spleen slightly enlarged; large serous effusions were present in abdomen and thorax. An examination of the brain was refused. This individual died early last November. His illness dated back only to the beginning of June of the same year. His disease started with symptoms referable to the chest, severe cough, dyspnœa, wasting, and emaciation. Soon, however, œdema of the lower extremities and ascites developed. He was tapped several times, but the fluid rapidly reaccumulated. He ate fairly well, but nevertheless wasted in flesh. Increasing dyspnœa and persistent dropsy were always the prominent symptoms, death occurring finally from exhaustion.

The physical signs noticed before death were: area of the heart's dulness much increased; at the same time a systolic murmur was well heard within the tricuspid area, also a slight murmur at the aortic orifice.

Now, the remarkable feature of this case is that, despite such conditions existing, up to the time of his last illness he remained in comparatively good health. His mother stated that he was a "blue baby," remaining so for about two weeks; that during childhood and adult life his fingerends and lips were at times bluish in color, but accompanied by no unpleasant subjective symptoms other than some shortness of breath on exertion. Aside from the diseases of childhood and three attacks of malaria, he never had any recognized acute disease. In fact, he had much enjoyed life, and was looked upon by his family and friends as a perfectly healthy man, without at the same time being remarkable for either strength or vigor. How wonderful as well as inexplicable must have been the compensations going on in this man's economy during a life of thirty-eight years' duration!

With this incomplete closure of the foramen ovale, it is certain that blood properly oxygenated could never at any time have perfectly nourished the tissues of this individual. We no doubt find in this a partial and probable cause for the early atheroma. No clue of any kind as to a specific taint could be found in this individual; the post-mortem showed no change in the kidney-structure: thus eliminating the two most fertile causes of early atheroma. The heart itself must have played an important *rôle* in the compensations of this individual. What of quality was lacking in his blood must be made up in quantity: the heart must do more work. The immense hypertrophy in this case, we think, was most probably induced by the abnormal arterial tension which we infer must ever have existed here, and for the following reasons.

It is known that when the venous character of the blood is increased there is an augmentation in the action of the general vaso-motor centre, which of course leads

to a general constriction of the smaller arteries. Therefore the constant venous character of the blood in this case constantly increased arterial tension, which, while it indirectly helps to augment the force of the heart's beat, is at the same time a direct obstacle to the heart's emptying itself of its contents. Hypertrophy, in our opinion, occurred here from the same condition of things—although with a different causation, yet for the same reason—that produces hypertrophy in sclerosis of the kidney.

The increased resistance in front and the augmented supply from behind, especially on exertion, would both concur in bringing about the great distention of cavities which was also present in this specimen, especially of the right ventricle. For the distention was such here as to prevent perfect coaptation of the valves, permitting leakage, and thus accounting for the murmur which was heard in the tricuspid area.

Many cases of interesting compensative action might be cited from the experience of others; some other cases of interest might be cited from our own experience; but a case where the organic lesions are so evident, yet the subjective and objective symptoms of disease remain latent for so great a length of time, must, we conceive, be exceptionally rare. For it was only when compensation failed entirely of accomplishment that the greatness of the possibilities of change which lie hidden in the body manifested themselves, and then only at the end of the life of one whose previous existence had been comparatively free from all disease.

1033 VINE STREET.

QUININE IN THE TREATMENT OF WHOOPING-COUGH.

BY W. THORNTON PARKER, M.D.,

Newport, Rhode Island.

A COMMUNICATION which I lately read in one of our journals concerning the treatment of whooping-cough with quinine in *large* doses has suggested to me that my own experience with this treatment for the past six years may be worth recording. I am the more inclined to do this since noticing that in the *British Medical Journal* of February 6 the question has been again raised as to what *is* the best treatment for cases of whooping-cough.

During the past six years I have treated upwards of one hundred cases of this disease, and the principal remedy has been sulphate of quinine in solution. With very few exceptions, this treatment has proved perfectly satisfactory. Only in cases where the hygienic surroundings have not been good, or where the remedy was not faithfully or regularly employed, or where unusually obstinate symptoms prevailed, has this excellent remedy failed to relieve, if not actually to cure. The paroxysms diminish in frequency, and the little patient shows unmistakable signs of improvement as early as the second day. With regard to Dr. Sauerhering's treatment with powders of sulphate of quinine, I have found that method less desirable, and have used it only a few times, trusting entirely to solution of sulphate of quinine varying in strength according to the age of the patient and the severity of the disease.

The employment of the solution affects at once the coughing, and the vomiting is not severe enough to occasion any considerable alarm. A certain amount of nausea, sufficient to disengage the mucous secretions, is of course desirable. Even if this treatment should be found disappointing as a *specific*, it is certainly useful in that it places the patient at once under the most favorable circumstances for a recovery, removing or relieving many of the painful and prominent sources of the disease.

Under this method of treatment complications are guarded against, and the patient's general condition is vastly superior to that of children treated with such remedies as belladonna, for instance, or other well-known depressants, and cough-syrups. The treatment with sulphate of quinine is a rational treatment. The treatment with cough-mixtures is often only a miserable attempt at palliation.

The favorable statistics of Dr. Sauerhering will be found greatly increased by Dr. Dawson's method, and a perusal of the latter's little pamphlet* on the subject will explain the *modus operandi*, so that any one can employ the treatment with a reasonable hope of success.

Dr. Dawson introduced this treatment from Germany, and first used it in the wards of the Hospital for Children in New

* Treatment of Whooping-Cough by Small and Repeated Doses of Sulphate of Quinine.

York City, then under his care. He met with great success. In 1880 I employed this treatment in many cases in private practice. I was so much pleased with its workings, and the almost immediate relief afforded, that I have used it and recommended it ever since. The treatment which I follow is to expose the patient as much as possible to the open air, and, if practicable, at our mountain or ocean resorts, paying particular attention to food and clothing and general hygienic conditions. Every two hours I give a teaspoonful of a solution of sulphate of quinine four, six, eight, or even ten grains to the ounce. This remedy does not disappoint in many cases in controlling the disease, and, if properly used, and with perseverance, in actually curing it, or at least shortening its course very decidedly. It seems to act as a sedative in the inflamed mucous membrane, and has also the valuable properties of a tonic. Unlike many of the other remedies which are so unsuccessfully exhibited in this disease, it has absolutely no injurious effects. The little patients begin to improve very shortly after the first two or three doses. I am fully convinced that a trial should always be made of the solution of sulphate of quinine in the strength and in the doses indicated, according to the age of the patient and the severity of the case; and after a few faithful experiments in this direction I believe that no one will be able to say with truth that "the course of the disease could not be controlled by treatment."

NEWPORT, RHODE ISLAND, April, 1886.

KOLA.

BY N. HUDSON, M.D.,
Medical Inspector, U.S. Navy.

THE attention which has been drawn by Dr. Gihon, in an article recently published,* to the merits of kola, and the interest taken by the profession in new remedies which may possibly prove to be of signal value, induce me to report the following case, in which the results have been so striking as to encourage further and more definite trials of this remarkable agent.

The patient, a lady of 36, had suffered during childhood from rheumatism. Up to a recent period, however, she had been in good health and able to lead a busy, active life. Eighteen months since, she was attacked with severe endocarditis, from which she recovered slowly, and with a damage to the mitral valves (insufficiency). The action of the heart was feeble and irregular, and there was a good deal of dyspnœa, faintness, and fatigue upon even slight exertion. She had always been subject to occasional headaches, and these now became periodic and severe, occurring at first at intervals of four or five weeks, and lasting two days. Latterly they had increased in frequency and intensity, coming on about twice a month, each attack causing three days of suffering so severe as to fill the patient's mind with constant dread of a recurrence. The discovery of a ratio of urea much below that of normal urine, with the existence of an occasional granular cast, established the conviction that the headaches were uræmic in character.

About three months since, she commenced the use of the kola-paste, taking about ten grammes once or twice daily, in hot milk, prepared in the same way as chocolate. During the first nine weeks of its use there was no recurrence of headache. Then there was a comparatively mild attack, which may fairly be attributed to a suspension of the use of the kola in consequence of the marked improvement. The general condition has materially improved, the heart's action is much more regular, and the attacks of dyspnœa and faintness have nearly disappeared. The most characteristic effect seems to have been an immediate relief of the sense of fatigue, a sense of *bien-être* and cheerfulness to which the patient had been long a stranger. The employment of the kola seemed to be satisfying to the appetite, for, whenever taken, it appeared to serve as a substitute for the next following meal. But the nutritive processes were not impaired: on the contrary, the bodily weight increased from ninety-eight to one hundred and five pounds. No marked change in the character of the urine has been observed. The quantity voided has somewhat increased, but the total amount of urea excreted remains at about ten or twelve grammes daily.

As far as the experience in this single case goes, it would appear that kola may be a valuable therapeutic agent. The con-

* See page 540, *ante*.

siderable percentage of caffeine which it is said to contain would theoretically make it useful as a heart-tonic. But caffeine had been tried in this case without any marked results, and the same experience had been had with convallaria. Digitalis had been the only agent which was found to be of service, but its effects were only temporary and palliative, not being sustained even when given for long periods combined with iron. The improvement which was established with the employment of the kola was marked and immediate, and the gain in the well-being and comfort of the patient has been most gratifying.

It may be proper to add that we owe the introduction of this article to Messrs. I. Christy & Co., 155 Fenchurch Street, London, and that the American depot is with Lloyd Brothers, Cincinnati.

WASHINGTON, D.C.

NOTES OF HOSPITAL PRACTICE.

ST. MARY'S HOSPITAL.

SERVICE OF J. H. GROVE, A.M., M.D.,

Surgeon to the Hospital.

AN UNUSUAL CASE OF LITHOTOMY.

WILLIAM M., aged 41, was admitted to St. Mary's Hospital March 30, 1886, suffering with retention of urine of about twenty hours' duration. He gave the following history. While in the army about twenty years ago he contracted gonorrhœa, which in time was followed by stricture of the urethra. About twelve years ago a physician attempted to relieve the stricture. Urinary infiltration and extensive sloughing of the perineum followed. Since that time the patient's urine has dribbled away through several perineal fistulas of capillary fineness. He occasionally suffered with retention for a few hours' duration, which, however, always yielded to warm baths and warm drinks.

Examination at the hospital revealed distended bladder reaching half-way to the umbilicus. A No. 16 catheter passed into the urethra about two and a half inches, and a filiform bougie about an inch more. The perineum was scarred, and composed chiefly of cicatricial tissue. No opening could be seen, but numerous small points were scattered about the perineum, appearing like recently-closed mouths of fistulas. Selecting what appeared to be the largest, I broke through the thin skin with a probe, and succeeded by a tortuous path in finding an opening into the bladder. A grooved director was now passed alongside the probe; the probe was then removed, allowing the urine to dribble slowly away, which relieved the patient. Subsequently the grooved director was passed into the bladder when required for the same purpose. On the following day, when I passed the director, it impinged upon a calculus which seemed to be quite two inches in diameter. Although the patient had suffered from obscure pains, with other symptoms which might have been referred to calculus as the cause, its presence had never been suspected. A fine, flexible catheter was next passed; but it soon choked up in consequence of the condition of the urine, which contained much pus, and was dark and ammoniacal. For this appropriate treatment was instituted.

On the first day of April he had two chills and considerable fever, with diarrhœa at night, from all of which he was relieved by the following morning.

By repeatedly pressing against the wall of the fistula with the back of the grooved director, the opening was gradually enlarged, so that on April 3 a silver female catheter was introduced; after which the bladder was washed out twice daily with a solution of borate of sodium. By April 6 his condition had greatly improved: the urine was nearly normal, though still containing some pus. He now passed his urine continuously through the female catheter, to which was attached rubber tubing which conveyed the urine into a receptacle alongside the bed. The opening remained patulous, so that he removed and replaced the catheter at will.

On the 17th of April, assisted by the hospital staff, I removed the calculus. The patient being etherized and placed in the lithotomy position, the fistulous opening being precisely in the line of the raphé and about a half-inch above the rectum, a grooved director used as a staff was passed into the bladder through the fistula and held by an assistant. An incision was made to the left from the fistula and slightly downward to a point at which the incision for the lateral operation usually

terminates. Another incision was then made from the fistula upward, in the line of the raphé, as far as it could be safely carried; both incisions at the fistula were carried down to the bladder; with a blunt-pointed bistoury, following the groove of the director, the opening in the bladder was sufficiently enlarged. The stone was then seized with forceps and promptly removed. It measured two and a half by one and a half inches in its diameters, and weighed one ounce and three-quarters. One artery required a ligature. The incised tissues were largely cicatricial, and the oozing quite free, which was not checked by the application of a saturated solution of alum, but was immediately arrested by a light touch of Monsel's solution. The subsequent treatment was in all respects the same as is usual after ordinary lithotomy. The patient recovered promptly, without an unfavorable symptom. The task of overcoming the very close and rigid strictures and restoring the calibre of the urethra was left for a subsequent operation.

TRANSLATIONS.

THE EVOLUTION OF THE MICROSPORON FURFURANS CONSTITUTING A PARASITE OF TUBERCULOSIS.—MM. Duguet and Héricourt read a paper at a recent meeting of the Academy of Medicine on "The Evolution of the Microsporon Furfurans constituting a Parasite of Tuberculosis." The authors in two cases of tuberculosis were unable to detect either Koch's bacillus or the zoöglœa of Malassez and Vignal, but found voluminous spores. The patients, besides being tuberculous, were affected with pityriasis versicolor. MM. Duguet and Héricourt conceived the probability of a pseudo-tuberculosis, microsporic in character and of pityriasic origin. Artificial cultivations were made, and with them inoculations which reproduced in animals the same parasitic affection, also granular lesions. In the cultivation-fluids there are two strata, an upper one containing bacilli analogous to Koch's bacillus and a considerable quantity of spores and filaments of mycelium; the latter were found when the cultivation-fluid was heated to 40° Centigrade. As the mycelium grew mature, they broke up into granulations: these granulations, when exposed to the air, developed into bacilli. Those which when in the form of spores contract and become granulations, when in contact with the air reproduce mycelium and spores, which multiply by budding.

The investigators believe in the microsporic nature of tuberculosis, and think it possible that the facts they enumerate will throw light on a great many points of bacteriology now obscure, and also furnish the reason why bacilli are not found in tuberculous viscera when they are present in sputa. MM. Malassez and Vignal inoculated zoöglœic masses and produced bacillary tuberculosis. MM. Duguet and Héricourt consider that all bacillary affections ought to be studied afresh and other methods adopted; also that the result of their researches indicates modifications concerning the therapeutics and prophylaxis of tuberculosis. It is possible that pityriasis versicolor may be the starting-point of a visceral tuberculosis. The susceptibility of the microsporon to the influence of sulphur indicates the advisability of treating with sulphur such pulmonary affections as cannot be distinctly diagnosticated. The arrested development of bacilli in acid media may possibly explain why bacilli are not found in the lungs of arthritic patients nor in their sputa. MM. Duguet and Héricourt terminate their communication by stating that pityriasis versicolor ought not to be rejected as a cause, but should be carefully sought for, and, if found, treated with energy.

THE RESPIRATORY CENTRES OF THE SPINAL CORD.—Since Legallois' works, and especially those of Flourens, nearly all physiologists (notwithstanding the objections brought forward by Brown-Séquard) have admitted the existence of a respiratory centre in the medulla oblongata. Consequently, the respiratory movements are arrested when the cord is cut between the atlas and the axis. Recent researches have shown that the cord, though severed from the medulla oblongata, can under certain conditions functionate as a respiratory centre.

Rokitansky (*Wiener Med. Jahrschr.*, 1874) demonstrated this fact by cutting the cord in young rabbits between the first two cervical vertebræ. After they had been poisoned with strychnine, during the convulsions it was found that some respiratory movements took place. The most

complete researches of this order are those made by Langendorff (*Arch. f. Physiol.*, 1886).

M. E. Wertheimer has recently made a communication to the Paris Biological Society, in which he states that in a number of experiments made on adult dogs of all ages, sometimes with strychnine, sometimes without, he obtained the same results as Langendorff, and observed respiratory movements. After the spinal cord had been cut in the cervical region, these phenomena occurred in fully-developed animals without using strychnine. It must be borne in mind that severing the cord not only cuts off the centre above the point of section, but for a certain time renders inert all the centres situated below it. But this result of the operation is less evident and more transitory in newly-born animals, especially in young cats. In them respiratory movements return soon after they have been thus operated on; but even in them excitability of the cord does not last long. It must be stimulated, as Langendorff did, by giving a weak dose of strychnine. In order to obtain in adult animals more striking results, an interval of time should be allowed to elapse sufficient to enable the momentary nervous exhaustion to wear off, and no strychnine need be given.

M. Wertheimer severed the spinal cord of an adult dog at eleven o'clock in the morning. Artificial respiration was carried on during some hours afterwards. The animal was carefully enveloped in cotton-wool and kept warm. The experiment was made at five o'clock P.M., and it was observed that general reflex action had returned in the limbs. Artificial respiration was suspended. After two minutes, a few feeble respiratory movements were registered by Marey's register: they became deeper and more frequent when five minutes had elapsed. There were about fifteen in thirty minutes. They then became slower. Artificial respiration succeeded in maintaining them for a few minutes only.

THE FAVUS OF FOWLS IDENTICAL WITH THE FAVUS OF HUMAN SUBJECTS.—The works of Gerlach, Miller, and Leisering made known in 1880 a dermatomycosis which has been generally considered as a favus; but the identity of the parasite with the *Achorion* was based on a morphological resemblance. The affection was not recognized in France. It was confounded with the itch due to sarcoptes. Recently, M. Mégnin has considered the fungus that produces favus in the fowl to be of an order closely resembling *Achorion Schoenleinii* and *Oïdium albicans*. He names it *Epidermophyton gallinæ*. This fungus was named by Revolta *Aspergillus microsporon flavescens gallinæ*. M. Neumann, in a recent communication to the Paris Biological Society, stated that he believes dermatomycosis of the head and neck of fowls is due to the Achorion Schoenleinii. It is thoroughly demonstrated that the Achorion Schoenleinii can produce favus in rats, mice, cats, dogs, and rabbits. Gerlach tried unsuccessfully to transmit favus of fowls to domestic animals. Schütz more recently failed in the same attempt. M. Neumann has been more fortunate. He inoculated a young dog with fowl favus and one with favus of the human subject: in both animals the affection presented the same clinical features. Both were quickly cured without treatment, as generally happens with animals in this affection. The same experiment was repeated on two rabbits, with the same results.

LOSS OF PATELLAR TENDON REFLEX WITHOUT DISEASE OF SPINAL CORD OR NERVES.—At a recent meeting of the Paris Biological Society, M. Déjerine read notes on a case of suppression of reflex action of the patella, with the cord remaining intact; also the posterior roots. It is well known that in a normal condition absence of reflex action in the patella very rarely happens, but is important as a symptom of sclerosis of the posterior columns at its onset. Nevertheless, it may be met with independently of any alteration of the spinal cord and the posterior roots. M. Déjerine has observed the following instance. The patient was tuberculous, reflex action in the patella was absent in both knees; he was in M. Déjerine's wards during ten months and it was not observed. There was no motor nor sensory disturbance. At the necropsy lesions characteristic of pulmonary tuberculosis were very evident. The cord and its membranes, and the anterior and posterior roots, appeared normal to the naked eye. Microscopic examination of the posterior roots in the lumbar region proved them to be normal.

PHILADELPHIA
MEDICAL TIMES.

PHILADELPHIA, JUNE 26, 1886.

EDITORIAL.

IS THOUGHT A FUNCTION OF MATTER?

WITHIN a few years a great change has taken place in our ideas of the constitution and nature of matter, almost, indeed, amounting to a complete revolution. Matter is no longer regarded as an inert substance, incapable of spontaneous change, and occupying exclusively a definite portion of space: essentially considered, it has neither length, breadth, nor thickness, and cannot be felt or handled. Molecules and atoms are not even regarded as ultimate forms of matter, since they are separated by a medium which is capable of propagating force,—this medium being, therefore, matter of a more refined character than the supposed elementary atoms themselves. The New Chemistry presents these constituent particles of material objects as endowed with ceaseless activity, moving with the velocity of a cannon-ball within ranges which have been closely estimated, constantly clashing with one another, yet never coming in actual contact, each atom or molecule being surrounded by an impassable area of repulsion, known as its dynasphere.

Our views of its relations to force have also been greatly modified. The forces of nature are now considered as merely matter in motion; but the speculations of science have gone even further. Mr. Benjamin Howard, in an ingenious and highly-interesting paper read some years ago before a London society, puts the relations of matter in this shape: "We pass from solid matters, such as the metals, to the liquids; from the liquids to the gases; from the gases to radiant matter; from radiant matter to the forces of nature,—gravitation, magnetism, light; from force to sensation; from sensation to thought, idea, purpose! Here, too, as with animal and vegetable life, we may well believe that there is no break of continuity; and here, also, it may be well to direct for the time our attention to intermediate forms, forms of which we can say neither 'These are material' nor 'These are spiritual.'" *

Huxley, in one of his Lay Sermons, has boldly asserted that "thought is a function of matter." This brings us face to face with a problem which, even though unsolvable, is of such profound significance, of such paramount importance, as to demand our earnest consideration. As the expression of an individual opinion it would have little weight; but the case is different when this is published as an accepted truth of modern science by one who claims to have authority, one who speaks not as a scribe, but who adds weight to his utterances by giving them the unusual and formal title of "Sermons."

Can matter think? If so, then it must feel, since thought and feeling are acknowledged to be inseparable by no less an authority than Herbert Spencer. If sentient and intelligent, universal matter is no more and no less than a manifestation of the Universal Mind, in which man is immersed just as a plant is surrounded by the medium from which it draws its life. Nay, more: the particles which compose his corporeal frame are also parts of Infinite Intelligence, which fill their appointed places and pursue their appointed tasks in accordance with the laws of nature, in which the poet sees the thoughts of God. Science, then, may yet come to admonish him, in the words of Bailey,—

> "Let each man think himself an act of God,
> His mind a thought, his life a breath of God;
> And let each try, by great thoughts and good deeds,
> To show the most of heaven he hath in him."

* Quoted by the anonymous author of "Can Matter Think? A Problem in Psychics." The Biogen Series, No. 4. Boston, Estes & Lauriat, 1886.

But the question, Is thought a function of matter? remains a mere speculation. It is true that our brains are built up of particles of matter which are not only constantly in motion, but are also constantly changing. That which survives the processes of waste and repair must surely be something different from matter. Consciousness, individuality, memory,—these cannot find their coefficients in the mere waste of brain-substance!

The priest of science has elsewhere declared (Lay Sermons, No. 12) that "Living bodies may be regarded as nothing but extremely complex bundles of forces held in a mass of matter, as the complex forces of a magnet are held in steel by its coercive force." This view seems crude, and as a definition fails in the first essential, since it conveys no exact meaning. We cannot attach much weight to a mere permission to hold an opinion, unless the terms are defined, the reasons given, and the demonstration made that such opinion is the actual truth of science. What are forces? what is matter? and what do we know with regard to the relationship existing between steel and magnetism? If we do not know, and if science has no voice to answer these preliminary questions, on what ground can it attempt to declare what life is? Certainly the sentence quoted has apparently the form and force of a definition, ambiguous though it may be, given by modern science of the greatest problem of biology. But is it not idle to attempt to declare thought to be a function of matter until we are prepared to tell in what thought and matter essentially consist? When science can penetrate the veil of Isis and declare to the world the mystery of life, it will be in another stage of existence, where we cease to know in part and shall know all that is to be known. Until that time shall come, our views of the actual relation of matter to mind must, in the very nature of things, rest solely on conjecture.

WORK OF THE COMMITTEE ON LUNACY.

THE Report of the Committee on Lunacy of the Board of Public Charities of the State of Pennsylvania, for the year ending September 30, 1885, to the Legislature, has just been issued, bound singly, and also in a handsome volume with the Report of the Board of Charities. The document of the Committee on Lunacy occupies two hundred and ninety pages, and is larger than the report of the Board itself. Since it was made, Dr. Thomas G. Morton has succeeded Mr. Philip C. Garrett as chairman, and Charles J. Harrah, of Philadelphia, has been appointed to fill a vacancy in the committee. The report shows the condition of the insane asylums and almshouses (sixty-five of which are found in this State), of most of which photographs were taken by a member of the committee, and lithographs made from these, which have been used with happy effect to embellish its pages.

The report contains lithographic portraits with short biographical sketches of Thomas S. Kirkbride, M.D., and Joseph A. Reed, M.D. Dr. John B. Chapin contributes a paper upon "The Progress and Tendencies in the Care and Treatment of the Insane during the Past Year," and Dr. H. M. Wetherill gives some notes on "Hyoscine Hydrobromate and Hyoscyamine, with Tabulated Observations of their Effects in Insanity," in which gratifying results are shown to have been obtained, especially with hyoscine, in overcoming insomnia and motor excitement. A number of hospital statistics are given, and also the unsuccessful appeal to the city authorities with regard to the rebuilding of the insane department of the Philadelphia Hospital and its removal to a place outside the limits of the city. The great need of a hospital to accommodate the criminal insane is dwelt upon in the report, and at-

tention directed to the fact that hospitals are curative places, which should not be weighted down with a great number of simple defectives in the custody of medical men.

The good results of the faithful performance of responsible duties devolving upon this committee are seen in the reduction in the use of mechanical restraint, in the discovery and removal of isolated cases of neglected and abused lunatics to the State hospitals, and in the greatly-improved condition of the insane throughout the State, owing to frequent visitation and examination. An important safeguard has been afforded by the system of forms which must be filled upon admission or dismission of patients, and also regularly during the course of treatment while in the hospital. It is possible that some of the routine work required of the asylum superintendents might be simplified so that it need not demand so much of their time; but the committee has simply carried out the provisions of the law, and its course has furnished more than sufficient reasons for its existence and justified its appointment.

A resolution was adopted at the last meeting of the State Medical Society, requesting each county society to appoint a Board of Visitors to examine and report upon hospitals and places in the neighborhood where the insane may be found. We learn that as soon as this is done the several boards will probably be made the official visitors of the Committee on Lunacy, which will give them official standing and aid them in their work, and will also facilitate the labors of the Lunacy Committee.

The committee has also issued, as an appendix to the report, a pamphlet entitled "An Almshouse Directory of Pennsylvania," prepared by the very efficient secretary, Dr. Andrew J. Ourt. This little work is very useful for reference.

NOTES FROM SPECIAL CORRESPONDENTS.

PARIS.

MEDICAL Clinic by Professor Germain Sée at Hôtel-Dieu.—The therapeutic views of this eminent clinician are considered of great importance everywhere, and his works have been translated into many languages. In one of his late clinics, entitled "The Causal Medicine and the Biological Remedy," he treated the subject of medicines and their proper applications. We understand by causality anything which happens as the effect of a cause. "The definition of what a remedy really is is as different as are the various reigning doctrines. The true empiric says, 'It is anything that cures a disease or modifies it:' so that with him the medicine takes precedence, so to speak, of the morbid state. The ideal remedy, then, is that which recalls to our minds the memory of the nosological system from which came the famous adage '*naturam morborum ostendit curatis*,' and it is on this traditional axiom that empiric medicine still rests, which, since the days of Soranus, the chief of empirics, up to those of modern scepticism, is still trying to make discoveries by chance, experimenting without any guide, and finding only by accident or exception the means to oppose the disease that is only too real. Shall we banish these old medicines and poisons that have come to us from the savages of India and Africa, or from the votive inscriptions on some old Greek temple? Ought we to condemn *a priori* the panaceas that have slipped into science by chance, or sometimes by the conception of some cracked imagination? The duty of the physician is to submit these illegitimate products to experimental proof, within the measure and limits of scientific reason. A duty still more imperious than this is imposed on the practitioner: that is, to declare the real value of such remedies and fix more exactly their indications, and to say whether or not the disease treated would have been cured just as well and as quickly without the medicine as with it. A true medicine is causal. Not very long ago we found out specific medicines, and every one at once tried to discover in every virulent disease its particular remedy, being encouraged by the examples that tradition seemed to furnish, such as mercury for syphilis, iodine for scrofula, quinine for intermittents, etc. The day that the pathogenetic microbe was made known, this causal form of therapeutics must have felt a revolution. This is the case particularly in obstetrics and surgery, where we can operate and attack the parasite easily in such cases as puerperal infection and surgical septicæmia. But medicine proper only finds the micro-organisms in the depth of the tissues, and it has not as yet been so happy in its results, for we cannot

kill the pathogenetic parasite, and we can only *paralyze* it and check its growth in the tissues with difficulty.

"However, we are now in a way of forming biological anti-microbe laws, showing what is favorable to the man and unfavorable to the bacillus. By these laws the organism is considered as a culture-ground which may be sterilized so as to destroy the parasite. The progress of medicine is just here, and not in any vague considerations of age, sex, temperament, constitution, or diathesis, etc., which have been falsely considered the morbid cause.

"We must, then, create in our organism vital conditions that will be incompatible with the biological laws of the microphyte. In default of a direct attack, there remains the resource of preventing its ravages on any organ affected, and consequently the multiplication and diffusion of the microbe in the body. This is only an indirect causal medication, it is true; but our therapeutic power is not limited to this form, for long before the discovery of the micro-organisms of different sorts, we already had found, in great part at least, the anti-virulents, such as mercury, iodine, etc. These are also known as antiparasitic remedies. It is true that the parasite of syphilis is not yet found; but that of scrofula has just been discovered, and that of intermittent fever is not yet sure: however, we are a long way off from the old talk of the 'contagious agent of syphilis' and the 'miasm theory of paludal fevers.' So that we can from now recognize in these drugs a direct curative power and a destructive means to be used against virulence, and in hygienic therapeutics a regenerative or definite action of the organism against its dangerous invaders. This is real progress. We have, then, the specific action of remedies that are attacking a supposed contagion. Iodine will cure syphilis as well as scrofula, and the sulphate of quinine has an antiparasitic action in several diseases. Why? Simply because iodine and many other drugs must have a general action on several groups of the microbes. There exist, then, medicines that have an action on one single order of bacteria, and others that have an action on several different classes of them, and they are all real curative agents.

"In antiparasitic medication the organism is touched by the drug used, and it reacts in different ways. It was owing to the neglect of this fundamental fact that our first experiments failed when we tried to apply this modern science. When, after the discovery of the microbe, they took to introducing corrosive sublimate into the lung-tissue, they forgot that the field of battle was not neutral ground, and that living organs would not remain indifferent to the presence of the remedy: so that those who looked exclusively after the parasite often injured their patients. The parenchyma impregnated by the drug was often subjected to grave alterations that we should be acquainted with. The doctor who is charged to watch over the biological state must not give way to theory the moment the laboratory indicates the mode of action of the microbe.

"There is a fact that dominates all microbiology, as well as physiology and therapeutics. It is that the vital reaction is always multiple. This law may be formulated thus: There is not a single one of our medicines that has not different properties; not a remedy but has several ends in view; not a single curative agent that is abstract. Iodine or salicylic acid, taken as examples, have physiological effects on the tissues and organs that help or impede its action. It has a biological power on the organism that goes along with its destructive power on the micro-organisms. All these actions should be known to the doctor who proposes to prescribe remedies intelligently. A true medicine is not only a physico-chemical substance; it is essentially vital. Claude Bernard, without attempting to define a medicine, said, 'Any substance introduced into the organism and foreign to the chemical composition of the blood is a medicine or a poison.' But it seems more a question of dose: an excessive dose of the most inoffensive substance will become a medicine or a poison. Common salt is an example of this. The true remedy is, then, of a vital nature, and should take its place according to its physiological action on man in the normal state, and also in the pathological or abnormal. Not only, then, must we carefully take into our account its action on the morbid state which has invaded the different organs, but also its action on the normal life of those organs; and it is this *modus vivendi* that all must first know in order to judge of the effects of a remedy on the economy. There are two kinds of these effects: first, one seen by the simple appearances and derived from pure observation; second, the predominant actions, and they are to be superior in their place as symptoms. The latter are so exact that they almost formulate the mechanism of the physiological action of a remedy. For instance, among the cardiac medicines there are very few that do not have the power to lessen the heart's movements in some manner. Digitalis, veratrine, convallamarine, all act in the same way: so one would think that it was quite indifferent which one was given. But this is not so. Experiment has revealed to us the intimate action of these remedies: that is to say, the *mode* by which they modify the action of the different heart-nerves, or the manner in which they act on the heart-tissue itself. Veratrine acts rapidly on the heart-muscle, and diminishes the intravascular pressure and the number of the contractions. Convallamarine slows the heart by exciting the intrinsic nerve-ganglions; it also increases the energy of the systole and the force of the

blood-pressure. Digitaline acts also to moderate the heart's action and number of its beats, but it soon attacks the muscular fibre and perhaps the elastic texture of the myocardium, accumulating in the muscle and taking away its natural properties. So, then, if we want to lessen the number of the pulsations and raise the dynamic power of the heart, we use digitaline; while veratrine will have quite an opposite effect on the power of the heart; at the same time it will diminish very quickly the number of its pulsations. So the therapeutical applications of a medicine do not come from its apparent effects, but from its mode of action on the organs; and the physiological mechanism of a remedy ought, therefore, to constitute our guide in medical practice. As a final proof of the absolute necessity of knowing the mechanism of our therapeutic agents, take digitalis again. For a long time it was excluded from the treatment of asthenic heart-troubles because it was thought to induce a debilitating action, because it slowed the heart's movements; but now that we know that it augments at the same time the contractile power of both the heart and the vessels, physicians apply the physiological facts and give it more often with success in heart-debility, in atony, and in cardiac dilatations than in hypertrophy.

"We may conclude, then, that every substance becomes a medicine, every physico-chemical can become a therapeutic agent, first, when its primitive or principal action can oppose the destructive action of the pathogenetic parasites; or, second, when it modifies the defective action of an organ, or else supplies the intimate nutrition of the histological elements that have deviated from their usual or normal structure."

Hypnotism for Therapeutic Purposes.—Hypnotism is very much heard of in France, owing to the number of experiments made by Professor Charcot and others in the field of what we once knew as animal magnetism. It is now practised with suggestion of ideas to the patient, who is first put under the magnetic sleep and then ordered to perform acts that may benefit him. This is called "suggestive therapeutics;" and Professor Grasset, of Montpellier, thinks that the time has come when all should try this system and give our clinical experiments to the medical world, so that the therapeutical indications and contra-indications should be fixed. The first question about it is, Is this method uniformly safe for the patient? and to this Dr. Grasset answers, No. For all who try it find that, on constantly producing this artificial sleep in a patient, they can succeed better and better every time that they attempt it in the same person. If a susceptible person be taken who is simply nervous, and one should continue to operate on him, he will get rapidly more and more nervous until he becomes a real hysteric, and, if continued, he may become insane. Barth says that we should be wrong to think that this provoked sleep was a physiological phenomenon, as it is in reality an artificial disease, which only gets worse by continuing it. Nevertheless, one must conclude from the evidence in its favor that it has a really useful therapeutic application; and, after all, there is no medicine worthy of the name that is not a poison, and therefore dangerous under certain conditions to the living organism, while at the same time it may be very useful. There is also a social danger and a possible medico-legal one; but this is so with other remedies that we use very often. From the foregoing remarks we can conclude that hypnotism is a therapeutic agent that should not be allowed to be used by everybody, but that it ought to be reserved for experienced doctors only; and then it ought to be applied according to proper indications, that the clinic can teach us by investigating all published cases and taking the prudent part of them as a mean. To give at once an idea of how the magnetic sleep is used to provoke some therapeutical action by what is called suggestion, we will relate an observation of Professor Grasset's.

The patient was a hysterical one that the doctor had under care for eighteen months. Among the symptoms was a complete flexion of the wrist and all the fingers of the left hand, with complete anæsthesia of the hand and forearm. This had continued for some six months when Dr. Grasset proposed to treat her by hypnotism and suggestion. She accepted, and on the 21st of April he first got her to sleep by fixation of the eyes in six minutes. After a little effort, he got her to show that she could understand him, when he ordered her to move her paralyzed limbs; which she did; when he told her that they moved, and suggested or ordered her to continue to move them after she came to. He then woke her by blowing on the eyelids, and she was able to move her fingers; but several hours afterwards the thumb fell again into flexion. Upon a second application of the method being made, however, it also got well; and, in a third, complete sensibility was restored to the hand and forearm, with ability to use all the fingers and hand, and this continues up to date. Several authors have cited cases similar to this one, in which great good was done and no harm resulted. Bernheim gave some cases where a great improvement was made in handwriting that had been quite impossible before its application. Certain patients not only had their physical symptoms modified, but also intellectual troubles in hysterical cases have been much improved. So that it may be concluded that the success of suggestion is so complete in hysteria that it should be used as a therapeutical agent of cure; and it is particularly useful in those cases who are readily and rapidly put under

the magnetic sleep; and it is also without danger in these cases. The means of causing the hypnotic state is by fixation of the eyes, best done by the doctor who gives the suggestion, as it will be better carried out than by having the sleep produced by some one else. It is best to abstain from using the method excepting for serious therapeutical uses. Its true use is indicated for paralysis or contraction or anæsthesia of a part, as it probably does not modify the nervous system itself, and therefore cannot replace hydrotherapy, for instance, nor constitutional treatment; but it is a powerful therapeutical means of cure, that in selected cases will give good results.

Glaucoma.—Some very practical remarks of Dr. Javal on this subject will not be without interest for the general practitioner, for whom they were intended. "I desire to treat this subject for the reason that it seems well adapted to show the slight use there is in the pretended scientific exactitude which we eye-specialists sometimes are tempted to boast of. And I shall try to treat it in an elementary manner, though it is one of the most difficult subjects in ophthalmology. You know that this glaucoma in its advanced stage is characterized by an augmentation in the pressure on the eye, by a diminution of extent of the visual field, and by a weakening of sight, with conservation of the sense of colors. So that your smart specialist, after having examined the eye with his ophthalmoscope, hastens to measure the tension by means of the tonomètre, the peripheric vision with his perimètre, and the color-sight by Wolfberg's method. I have all these things here; but what is the use of showing them to you? For, remark one thing at the commencement: at the period when it is important to establish the diagnosis, all this arsenal will not help you. The ophthalmoscope itself is of no use, for the famous excavation of the optic nerve so much spoken of does not come until later; and as for the pulsation of the central artery of the retina, it may fail you; and I have seen it also in a perfectly healthy eye. It is important that all should be able to recognize glaucoma from its beginning, for expectation is not permitted in this trouble, and *the instillation of a single drop of atropine can produce an irremediable aggravation in an eye affected with glaucomatous prodroma.* And I will add here something *quite new* for you: which is that *cocaine can produce just as bad effects in these eyes, notwithstanding the diminution of pressure that follows its use.*

"*Diagnosis.*—How will you know glaucoma? For those eyes that are hard to the touch and have perikeratic injection, with a pupil immobile and the cornea dulled and painful, you don't need even the ophthalmoscope; but it is great art to catch them before this. The history mostly is that for months, or even years, the patient finds a slight loss of vision in obscurity, and he finds that in the evening there is a halo around the lights. If you are consulted by a person complaining of a loss of vision that has come on rapidly, and you see the slightest inequality in the pupils, the slightest weakness of the sphincter of the iris, be careful and don't put either atropine or cocaine in the eye; also, don't forget that an eye with glaucoma is not always hard. The halos spoken of are an important symptom. They will see them mostly when a match is struck in the dark; but these halos may occur in other eye-troubles. In this case you have only to instil a little eserine into the eye, and if they disappear your diagnosis is fixed; and it is to this medicine that you must look to help you in this disease at first. The wholesale druggists now manufacture little gelatinous rings of eserine, each containing the one-hundredth of a milligramme of the drug. These you may give to your patient, and if two of them a day do not relieve the symptoms, then surgical interference is called for. I need not say that all alcohol must be stopped, and but little meat allowed, and that well masticated. This, with plenty of out-door exercise and clothing very loose, constitutes the hygienic treatment.

"*Operative Treatment.*—If, with all your care, it continues, don't delay the operation. Sclerotomy should never be thought of. *Iridectomy is the operation;* and I presume that you will not care to perform it yourselves, although it is not so difficult with the aid of cocaine, which may be used only when followed by an operation. But there is one thing you can and should do, and that is, when you find yourself in presence of an acute glaucoma, when moments are precious, practise a *débridement* of the globe near its equator, between the rectus internus and rectus inferior muscles. A bistoury-cut of a few millimetres, as recommended by M. Parinaud, will often give immediate relief, and allow you the time to take the patient to some specialist to have a good iridectomy performed.

"To sum up: *Abstain from atropine and cocaine, and use eserine* in the *first symptoms of glaucoma*, and in case of acute glaucoma don't hesitate to *débrider* the ocular globe."

Swill-milk again.—The Council of Health in Paris have reported in favor of the expulsion of all dairy-cows from the city proper, only tolerating a very few exceptions, the owners of which can show satisfactory conditions of salubrity. There are at present upwards of five thousand of these animals in the capital, and they are found to be a prolific source of pulmonary phthisis. The milk of a great number of them has been shown to be fairly alive with the bacillus which, as we know, wastes the tissues of the cows, and then of poor human beings attacked with

phthisis. A syndicate of dairymen who have stables which they use for these cows, and who have long leases on them, are crying out in the newspapers in the name of vested rights against their business being broken up and no compensation being granted. One of their organs suggests that M. Pasteur might find a means of subduing phthisis in cows, and thus render it safe to drink milk from them when kept in confinement; but the Council of Health has turned a deaf ear to this suggestion, and will continue to do so.

THOMAS LINN, M.D.

PARIS, May 26, 1886.

PROCEEDINGS OF SOCIETIES.

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA.

Proceedings of first day.

(Continued from page 689.)

DR. JAMES TYSON read the Report of the Committee on Collective Investigation of Disease, the statistics of which had been obtained from the members of the Society, and the statistical report itself had been prepared by Dr. W. A. Edwards. The subject selected for collective investigation was rheumatism, the whole number of cases reported to the Committee being ninety-one. It was thought that no conclusions of value could be drawn from so few cases, and the question was submitted whether it was worth while continuing the inquiry for another year.

On motion of Dr. Bishop, it was resolved that the report be accepted and referred, and the Committee continued for another year.

On motion of Dr. Mills, the report of the Committee on Medical Education, presented by Dr. Jackson, was adopted, and the Committee continued and instructed to urge the passage of an act to establish a State Board of Medical Examiners and Licensers at the next session of the State Legislature.

Dr. Curwen moved that in the annual volume of Transactions the constitution, by-laws, and standing resolutions of this Society shall be published for the information of members and convenience for reference.

Dr. Henry H. Smith moved that in cases of protest against the admission of delegates, they shall be admitted to the floor while awaiting the decision of the Judicial Council. Adopted.

The question having been raised with regard to the appointment of the Nominating Committee in a case where a County Society has been prevented from being represented owing to a protest against their delegates being registered having been referred to the Judicial Council, the President ruled that the delegates of the preceding year shall continue to represent the Society sending them until their successors shall regularly take their seats in the meeting.

The President also requested the Judicial Council, if possible, to present its report on the admission of the Philadelphia delegates at two o'clock this afternoon.

At the opening of the afternoon session Dr. J. M. Anders delivered the Address in Hygiene and State Medicine, taking for his theme

THE PREVENTION OF COMMUNICABLE DISEASES.

The chances for successful prophylaxis of infectious diseases are greatly increased in those instances in which the specific organism has been isolated to which the infectious quality is due. The demonstration of the specific cause of a disease often leads, by inciting further study, to the attainment of certain knowledge concerning the indispensable conditions for its development and multiplication. Communicable diseases are in great measure preventable, provided that the known principles of hygiene are rigidly enforced.

The list of communicable diseases is long and varied, and in recent times has been added that scourge of humanity,—phthisis. In general this class of affections has a common mode of dissemination,—viz., by contagion, by infection, or both, though in varying degrees. As a corollary, there are certain leading principles looking to their prevention, which principles are applicable to them as a class, and they may be conveniently considered under three heads. First, isolation of the patient; secondly, atmospheric purification by disinfection and ventilation; thirdly, purity of the water-supply.

What does proper isolation consist in? Not merely in placing the patient in a separate apartment, having been occupied by other members of the household, but a special room should be set apart for this class of invalids in every comfortable family. Densely-populated centres should afford fever-hospitals. There are few human interests which could be more successfully promoted by an enlightened public sentiment than the proper isolation of those ill with infectious diseases. There are certain indisputable facts opposing the practicability of complete disinfection of ordinary living-rooms after being used for a patient suffering with a contagious disease. Thus, Prof. Tyndall found by experiment that the air of enclosed boxes at the end of three days no longer swarmed with the microscopical particles which were always found to be suspended in ordinary air. These had all attached themselves to the sides of the boxes. Experiments also show that air-borne bodies have no affinity for organic surfaces. The matters floating in the air of a closed room tend to attach themselves to the side-walls, floor, and ceiling. Hence to disinfect such rooms thoroughly it would become necessary to remove all paper from the wall. He

*

pointed out the superior advantages of the sick-chamber especially set apart for communicable diseases. Free ventilation is urged. The observations of M. W. Power have also shown that during the almost absolute stillness of the deposit of dew and hoarfrost particulate matter is most actively disseminating itself through the atmosphere, and further suggested the best modes of obviating such meteorological phenomena. The medical profession would do well to adopt speedily the measures recommended by a committee on disinfection of the American Public Health Association.

The conclusions arrived at by this committee show the complete efficacy both of the heat methods and the chemical disinfectants to free the atmosphere from air-borne organic impurities, and from micro-organisms, and from organisms causing diseases. So long as the efforts of mycologists to isolate the specific organism causing typhoid fever and cholera are unavailing, conclusive results cannot be expected from water-analysis. But that impure water is frequently responsible for outbreaks of the above and other diseases is no longer problematic: the subject can now be studied only from the side of practical experience. Finally, the lecturer pointed out the superior advantages of the bill recently introduced into the House of Representatives, having for its object the establishment of a National Health Bureau.

Dr. Charles E. Sajous, of Philadelphia, read the address on "Laryngology."

The author referred to the advances in this specialty, illustrating in a striking manner the advantages offered by the laryngoscope in the treatment of laryngeal affections. Several examples were given in which a positive diagnosis could not be made without it, thus exposing the patient to the dangers of inappropriate treatment. For instance, the differential diagnosis between tuberculous and syphilitic laryngitis, unless a clear history can be obtained, can only be settled with the assistance of the laryngeal mirror, while without it a tentative and erroneous treatment might cause fatal consequences.

These facts and many others being known, the lecturer urged that not a single case of persistent hoarseness should be allowed to pass without laryngoscopic examination.

"What responsibility," he asked, "does not a physician assume in neglecting to employ means which enable him to make a positive diagnosis, and treat the patient accordingly, instead of groping in the dark, guessing, as it were, at the diagnosis and running three chances in five that it is wrong? The laryngoscope has to-day assumed such importance in the domain of medicine that its use should be as general as that of the obstetrical forceps, and the student should not be allowed to leave the walls of his Alma Mater without first demonstrating his ability to manipulate it. He should be taught that with it he can watch over the integrity of the most exposed organ of the body and the shortest avenue between life and death."

The author then alluded to the limited amount of attention given by the general practitioner to the treatment of affections of the nose and throat, outlining the difficulties encountered and the means by which they might be overcome.

Attention was then given to the consideration of a few of the more important suggestions made during the year upon laryngology and its allied branches, pharyngology and rhinology.

The treatment of pharyngitis sicca as advocated by Shurly, of Detroit, was first described and commended. Shurly advocated the use of galvanism, believing the origin of many pharyngeal affections to reside more in the nervous supply than in an inflammatory process. After cleansing the parts thoroughly with an alkaline solution, one electrode is introduced through the nasal passages as far as and the other directly to the posterior wall of the pharynx, both being moved gently over its surface. This is repeated four or five times at each sitting, these being renewed two or three times a week if advisable. The time required for gaining permanent results will vary, of course, according to the kind of case and the state of chronicity present. A four-per-cent. solution of cocaine applied to the pharynx will greatly facilitate the manipulations.

"Alimentation in Laryngeal Phthisis," advocated by Dr. Beverly Robinson, of New York, formed the topic of the next selection. The gradually-decreasing appetite to which these cases are frequently subject, sometimes from the start, is evidently one of the most important elements of rapid decline. If there is appetite, the great suffering occasioned by the passage of food over the larynx causes the patient to limit the quantities taken as much as possible, producing the same deleterious effect on the general trouble. The food introduced by means of the stomach-tube is sometimes retained when everything taken directly by the mouth is rejected. Dr. Sajous recommends for the purpose the instrument devised by D. Bryson Delavan, of New York, consisting of a small rubber catheter mounted upon a soda-water bottle furnished with a rubber hand-bottle. A four-per-cent. solution of cocaine is first applied to the larynx by means of an atomizer, and the catheter is then introduced into the œsophagus by passing it alongside of the laryngeal wall, the tube being previously dipped in warm water, then oiled. Its tip need not reach below the limit of the constrictors, say an inch below the larynx. Milk, eggs, etc., can thus be advantageously administered. At times the stomach rebels and vomiting occurs; washing of the stomach generally restores it to normal action.

The life of the sufferer is invariably prolonged by this method, and, according to Robinson, "occasionally perhaps in a permanent manner."

The use of cocaine in the treatment of the diseases of the upper air-tract formed a very interesting part of the address. In hay-fever the author found it really beneficial in forty per cent. of the cases; thirty per cent. were partially relieved, and the remaining thirty per cent. were not benefited. In one case the application caused intense pain. The drug is best employed in a four-per-cent. solution, or in the form of pellets as manufactured by Wyeth.

Used as an anæsthetic, it has held its own. Cases had been reported, however, in which its application to the larynx had caused distressing action. An overdose can easily be administered by means of the spray. In the case of a physician upon whom Dr. Sajous had performed an operation requiring some time, a four-per-cent. solution was extensively used. During the night the patient found it exceedingly difficult to keep up respiration, his chest and lungs, as it were, refusing to act without the greatest effort on his part. A short period of inactivity on his part would cause a sensation of fainting and "sinking" to begin. This dyspnœa lasted six hours. The next day he could not recall what had happened after the first stages of the operation, or how he got home.

Alluding to an article on "The Headaches Associated with Chronic Nasal Catarrh," by Prof. Harrison Allen, the author stated that such a causation was frequently overlooked by the general practitioner. He had for the last two years obtained satisfactory results in those cases by means of insufflations of morphine, one-eighth grain being blown as high up as possible into each side of the nasal cavity by means of the auto-insufflator. A solution of cocaine is sometimes advantageous; but it occasionally induces the very trouble it is used to master, and is therefore not as reliable as the morphine.

The use of chromic acid in the treatment of hypertrophic rhinitis, strongly recommended by European authors, had also been very useful in the author's hands. Instead of embedding the crystals in cotton, however, as practised abroad, he found it more convenient to place a few crystals on the side of a flat probe and to hold them over the flame until melted. The acid assumes a "crushed strawberry" color and adheres very closely to the instrument. If held too long over the flame, it carbonizes and becomes useless. He had observed a case of poisoning by this agent. Repeated applications at short intervals caused an eruption to appear resembling that of varicella; the pulse was high, and the patient complained of general malaise. Cessation of the applications was immediately followed by the disappearance of all these symptoms.

"Hemorrhage after Uvulotomy," forming the title of a remarkable paper by Dr. E. Carroll Morgan, of Washington, who had himself observed a severe case, closed the address. Although exceedingly rare, the list of cases presented indicated that this accident was of possible, although of rare, occurrence, the unfortunate tendency which prevails to amputate the uvula at its base increasing greatly the liability to bleeding.

The reading of voluntary papers being called for, Dr. C. W. Dulles read a communication entitled

SOME RECENT ANNOUNCEMENTS OF PASTEUR CONCERNING HYDROPHOBIA.

The reader of the paper called attention to the acknowledged difficulty of diagnosis in cases presenting nervous symptoms supposed to be caused by the bite of a dog, and showed that many that had been thought to be hydrophobia were in reality tetanus, meningitis, or some other disease. Dogs are often said to be mad when they only have the distemper. The experiments of Pasteur are open to severe criticism on account of the lack of precaution to prevent error. The diagnosis of hydrophobia is accepted, and the patient treated and claimed as a success, even when the dog which bit the patient was not mad, as in the case of the Newark children. Attention was called to the great increase in the number of cases reported, and this was attributed to the effects of the publication of Pasteur's investigations, which have caused much agitation and needless alarm in the community. Dr. Dulles reported several cases coming under his own observation which had been pronounced to be hydrophobia, but which he had discovered to be some other disease. The paper was written to allay public alarm upon the subject.

The discussion was opened by Dr. C. K. Mills, who considered that the cases presenting the classical symptoms of hydrophobia are generally some disease of the nervous system like tetanus. Such had been the case in a number of cases he had investigated.

On motion of Dr. Woodbury, Dr. Dulles was requested to continue his study of the subject and report upon the same at the next meeting, when a suitable hour shall be appointed for the discussion of this important topic.

Dr. S. Solis Cohen read a paper on

INHALATION OF COMPRESSED AIR AS AN AID TO NUTRITION IN THE TREATMENT OF PULMONARY CONSUMPTION.

Although pneumato-therapy has been practised by European physicians for twenty-five years or more, the bulk of American physicians are still either wofully ignorant or indifferent to its value. Almost, if not absolutely, the sole American contributor to its

literature up to two years ago was Dr. J. Solis Cohen; in a series of articles published since 1867, and as late as May, 1884, in an address before the American Climatological Association, he had referred to it as a neglected therapeutic agent. Since then, chiefly through the exertions of the gentlemen connected with the so-called "Pneumatic Cabinet," interest in this method has increased; and, while he could not approve of their unprofessional methods or unscientific and extravagant claims, he thought that they deserve great credit for their energy in pushing what is a very valuable therapeutic resource. As for the apparatus in question, he felt constrained to say, as he believed that Dr. Platt, of Brooklyn, had conclusively shown, that the effects were no different and no better than those obtained by simpler and cheaper methods. The cabinet was neither new in principle,—as has been erroneously claimed,—nor could it be demonstrated that its physical or therapeutic effects were different in kind from those of similar modifications of pressure produced in other ways. As for "mysterious virtues," we need not take them into account in serious scientific discussion. In making these strictures the lecturer disclaimed any motive other than impartial regard for truth. The effects were then reviewed of altered pressure when the pressure within the chest exceeds that of the outside atmosphere. He showed that this method caused distention of the pulmonary alveoli to their full capacity, reopened collapsed lobules, cleaned out occluded areas, relieved congestion, and promoted circulation. In addition to this, he urged the practice of systematic pulmonary gymnastics. Whatever views we may hold of the etiology and pathology of phthisis, tuberculosis, and the group of chronic pulmonary diseases, it must be admitted that clinically they are characterized by "consumption," *i.e.*, failure of nutrition. In conclusion, the histories of five cases which had been cured or greatly benefited were read, and a large number of others referred to in which equally satisfactory results were reported. In addition to the pneumatic treatment, the lecturer recommended overfeeding, and the approved medicinal and hygienic management. Good results depend upon, and are manifested by, the restoration of nutrition.

Dr. Edward Jackson, of Philadelphia, then read a paper on

THE RELATION OF EYE-STRAIN TO HEADACHE.

Headache due to eye-strain is very common. The constant tendency of business and amusement is towards taxing the eyes more heavily, and it is not surprising that the balance between the capacity and need for seeing is so often lost. Cases of headache arising from strain of accommodation in eyes presenting a high degree of hypermetropia with astigmatism in a healthy person, a lower degree of hypermetropia in one in poor health, in the emmetropic eyes of a very hard student, in connection with insufficiency of the internal recti muscles of emmetropic eyes, and in connection with a tendency to vertical deviation of the optic axes,—these serve to illustrate that such headaches arise not from a certain defect of refraction or the strain of any particular muscle, but from requiring of the muscles necessary to vision or the nerve-tracts connected with them more than these portions of the muscular and nervous systems are capable of doing. The clinical characters of these headaches are identical with those of all other classes of headaches, and therefore do not aid in diagnosis, which may sometimes be made on the sequence of strain and ache, but at others is possible only by the removal of the strain.

The essential lesion of these headaches may be held to be an impairment in the nutrition of the gray matter of the medulla, where the roots of the fifth cranial and great occipital nerve come in close relation with the nuclei of the motor cranial nerves; this hypothesis being in harmony with the known facts of physiology and pathology. Hence they would be helped by any measures calculated to improve the nutrition of the part, such as good food, tonics, rest, and the removal of all depressing influences acting through the general nervous system, or by local measures removing strain by eye-rest, or the aid of prisms and lenses.

The following motion, offered by Dr. Dulles at the morning session, was taken from the table:

"*Resolved*, That it is the sense of the Society that when a protest is presented against the admission of delegates from county medical societies, this shall not act as a bar to their registration, but that they shall be registered upon presentation of such certificates as are provided for by Article III. of the Constitution, and not be deprived of the rights of delegates until the charges of the protest are established."

After considerable discussion, the resolution was adopted.

The afternoon session then adjourned.

In the evening a complimentary reception and banquet were given by the Lycoming County Medical Society to the State Society, at the Park Hotel.

(To be continued.)

PHILADELPHIA ACADEMY OF SURGERY.

A STATED meeting of the Philadelphia Academy of Surgery was held June 7, 1886, Dr. S. W. Gross being called to the chair.

Dr. De Forest Willard: I wish to exhibit a catheter to be used where there are blood-clots in the bladder as a result of enlargement of the prostate body or other conditions

at the neck of the bladder. The only blood-catheter of which I know is that of Gross, in which the opening is at the end closed with an obturator. This leaves only a small opening for the passage of clots. The catheter which I exhibit is provided with very large eyes, which remain closed until the clot, which is usually at the neck of the bladder, is passed. The obturator is then removed, and as it is withdrawn it exerts a certain amount of suction, which tends to start the flow. If the eyes of the instrument become clogged, the introduction of the obturator readily frees the openings from clots.

DISCUSSION.

Dr. R. J. Levis: What is the experience of the chairman with injections of alkaline solutions for the purpose of liquefying clots in the bladder?

Dr. S. W. Gross: I have not had the slightest experience with such injections. I have had two cases in which the bladder was filled with clots. Both occurred in precisely the same manner, and occurring in this way it must be an accident of extreme rarity. One case occurred ten years ago, the other four years ago. In each case the surgeon had attempted to dilate a stricture with the ordinary steel bougie. In each case a false passage was made, with retrograde hemorrhage, and in each case the bladder was filled with more or less solid clot. In the first case I opened the membranous urethra, and with a small spoon such as is used for olives I was able to remove the clots. In the second case, having no suitable instruments with me, I made an opening through the rectum. In both these cases there had been suppression of urine for two or three days, and both cases died. I have never seen a case in which I had to make injections into the bladder to get rid of clotted blood.

Dr. R. J. Levis: I had supposed that the ordinary treatment was injection of carbonate of soda, and if necessary the introduction of an instrument to break up the clot. This seems to liquefy the clot, and I believe that there is good authority for its use. I have employed it a number of times with good results.

Dr. S. W. Gross: Dilute vinegar will do the same thing; but it will be remembered that in the cases which I reported there was stricture with a false passage, and that there was no ingress into the bladder. In ordinary cases the injection of soda or dilute acetic acid will probably do well. In some cases you can wait and allow the clots to subside, and aspirate above the pubes. In other cases it might be a good plan to introduce a small Bigelow tube, break up the clots, and evacuate them. In my cases the opening of the bladder had nothing to do with the fatal result, and I should not hesitate to adopt the same treatment in similar cases.

Dr. De Forest Willard: I recently had a case in which the middle lobe of the prostate was enlarged and very spongy. I introduced the catheter with great care, but this was followed by profuse hemorrhage entirely filling the bladder. The bladder reached to the umbilicus. A large number of clots were passed. On attempting to withdraw the clots through the catheter the instrument became quickly clogged. On the second day there was no pain, and some small clots had been passed. Realizing the gravity of the case, I called a consultation. I thought it necessary to remove the clots, but it was decided to allow them to remain. In three or four days septic symptoms appeared. My own feeling was that an opening should be made through the perineum and the clots removed; but I was dissuaded from this by the consulting surgeon, and in about four days the man died.

At the post-mortem the bladder was found still filled with coagula. The middle lobe of the prostate was moderately enlarged and ulcerated.

OSTEO-POROSIS.

Dr. De Forest Willard: I have here two specimens of osteo-porosis. The first was obtained from a case in which amputation was performed six months ago. A second amputation became necessary ten days ago. The second specimen is from a case operated on three years ago. Both were cases of railroad crushing with great injury to the parts. In the first case the amputation was done at the tubercle of the tibia. The flaps sloughed, leaving the posterior flap on a line with the articulation of the knee-joint. The wound refused to heal, and some particles of bone were discharged. As there was complete anchylosis, it was impossible to bend the knee back so as to give the man a chance to walk on it. Re-amputation, therefore, became necessary. When the bone was removed and submitted to the action of a stream of water, the fatty contents were removed, and only a shell of bone remained. This can be readily crushed with the finger. I do not believe that this is simply a fatty change, the result of non-use, which is sometimes given as the cause of osteo-porosis. It seems to me to be more the result of osteomyelitis depending upon the original injury.

The second case was operated on three years ago, amputation being performed just below the knee for a similar injury. After four months re-amputation was required. The whole structure of the bone readily breaks down under the finger.

Dr. J. Ewing Mears: In connection with the specimens presented I desire to call attention to some specimens presented in 1870 to the Pathological Society of this city. This was a case of hyperostosis with internal osteo-porosis. The specimens had, unfortunately,

been subjected to a process of long bottling, and therefore they were unfitted for careful pathological study. As one of the specimens presented to-night is recent, it seems to me to be desirable to submit it to careful examination to determine the exact pathological condition present.

The term osteo-porosis is a general term which may be applied to rarefaction occurring in the interior of bones, internal osteoporosis. Its use does not signify the pathological condition which is present. The question raised as to these being specimens of osteomyelitis, or rather fatty degeneration, is germane to the subject, and should be considered. Dr. Willard has not given us any information as to the previous history of the case. This condition has been found associated with syphilis and tubercular conditions.

Dr. Willard: There was no history of previous disease.

Dr. S. W. Gross: The specimens which have been presented, I think, do not illustrate osteomyelitis, as has been suggested. They are either examples of rarefying osteitis or of degeneration the result of trophic changes.

Dr. Mears: In the specimens to which I have referred there were three conditions present,—hyperostosis, internal osteo-porosis, and secondary induration. It would be interesting to have this bone submitted to careful examination.

The following committee was appointed to examine the specimen and report at the October meeting: Dr. De Forest Willard, Dr. J. Ewing Mears, and Dr. J. Henry C. Simes.

(To be continued.)

NEW YORK PATHOLOGICAL SOCIETY.

A STATED meeting was held May 26, 1886, the President, JOHN A. WYETH, M.D., in the chair.

CALCIFIED TISSUE IN THE SPLEEN.

Dr. WALDSTEIN, of the Committee on Microscopy, reported that the specimen presented by Dr. George F. Shrady at a recent meeting was one of chronic perisplenitis with calcification of the tissue, the calcified plate being seven centimetres long by three and a half wide. The specimen was very rare.

FIBROID TUMOR OF THE UTERUS.

Dr. H. MARION SIMS presented the specimen for a candidate. The tumor was larger than a child's head. The patient died some days after the operation, of intestinal obstruction caused by an adhesive band passing over the sigmoid flexure.

TRAUMATIC PERINEPHRITIS FOLLOWED BY TUBERCULAR NEPHRITIS, ETC.

Dr. T. M. PRUDDEN presented specimens removed from the body of a man who died three years after having sustained a kick in the side by a horse. The injury was followed by a perinephritic abscess, which left a permanent fistula with a continuous discharge of pus. The autopsy showed a perinephritic abscess communicating with an abscess in the spleen, and thence with one in the base of the left lung. The kidney was the seat of miliary tuberculosis, there were two tubercles in the upper portion of the left lung, and an area of solidified tissue around the abscess in the lower portion of the same lung; the mesenteric glands were enlarged; the liver was enlarged and waxy. In reply to an interrogatory by Dr. Waldstein, Dr. Prudden said he had been unable to find any old tubercles, and he had concluded that the tubercular development was secondary to the injury and perinephritic abscess. But we should always remember the possibility of there being an old tubercular process in some portion of the body which we could not find.

LEUCÆMIA.

Dr. HODENPYL presented specimens removed from the body of a man who up to eight months ago was in perfect health. At that time he received an injury on the left hand, followed by an indolent ulcer of the arm, and later by another of the leg. The patient's health declined, anasarca developed, his complexion became a dirty white, the mucous membranes were almost bloodless. The white blood-corpuscles were greatly increased in number. There was an anæmic bruit over the heart. The temperature was 101.6°. There was some dyspnœa and cough. The autopsy revealed enlargement of the spleen and perisplenitis, enlargement of the liver, a moderate amount of diffuse nephritis, and enlargement of the lymphatics. There was some fluid in the pleural and pericardial sacs.

MULTIPLE STRICTURE OF THE ŒSOPHAGUS—GASTROTOMY.

Dr. A. JACOBI presented the œsophagus and part of the stomach of a man in whom were found at the autopsy the following lesions: multiple strictures of the œsophagus, commencing acute peritonitis near the wound where gastrotomy was performed, chronic endocarditis, chronic bronchitis, emphysema, broncho-pneumonia, acute pleurisy, chronic diffuse nephritis, chronic interstitial nephritis, chronic gastritis. The patient in 1885 drank some spirits of ammonia by mistake. Since then there had been gradually-increasing difficulty with swallowing. Lately he had difficulty in swallowing even liquids. A short time ago a physician attempted to pass œsophageal bougies, and a small one was said to have entered the stomach. The patient on entering the hospital was found to weigh eighty-eight pounds; formerly he weighed one hundred and sixty pounds. Numerous

efforts were made to pass small bougies. They passed some of the strictures, but none could be made to enter the stomach. The smallest stricture was situated near that organ. Finally gastrotomy was resorted to. An incision two inches long was first made, and afterwards, on account of the difficulty of reaching the stomach, was prolonged to three inches and a half. The stomach was then stitched to the incision in the abdomen with a large number of stitches, so as to cause adhesive inflammation to take place more rapidly. It was then resolved not to make the opening in the stomach for a few days, until after adhesion had been completed. Meanwhile, alimentation was to be continued by rectal enemata. The patient died a number of hours after the operation, of exhaustion.

In addition to the lesions already mentioned, the speaker called attention to the principal stricture of the œsophagus, situated near the stomach, sixteen and a half inches below the teeth. There were wounds of the mucous membrane at the seat of the different strictures, being evidently the result of attempts to introduce bougies. There was a communication between the œsophagus just above the lower stricture and the stomach by way of an artificial duct made by a bougie, in the course of which was an abscess which contained pieces of egg-shell. The case illustrated the danger of œsophageal bougies even when very gently used.

CONGENITAL CHOROIDO-CYCLITIS IN ONE EYE THE CAUSE OF SYMPATHETIC IRRITATION IN THE OTHER EYE AFTER THE THIRTY-SEVENTH YEAR.

Dr. HERMANN KNAPP presented an eyeball affected with choroido-cyclitis, probably congenital, which he removed from a woman 37 years of age. When the patient was six weeks old, her parents noticed two black patches in the upper ciliary region. She had never seen with that eye, but it had given her no trouble until three months before Dr. Knapp saw her, at which time the other eye became intolerant of light and weak in sight. The irritation having continued, the blind eye was removed. The cornea was shrunken. There were two small nodules in the upper ciliary region, the pupil was enlarged, irregular, and completely immovable. Brownish masses projected into the vitreous, and were distinguishable from tumors only by their ill-defined superficies. The vitreous was bloody and watery. The retina in the posterior half was thin, and so firmly attached to the highly atrophied choroid that only one blood-vessel betrayed its presence. The optic disk showed a marked glaucomatous excavation. Section of the optic disk was reddish, the subvaginal space was enlarged, and its soft trabecular tissue reddish and abundant. Through the thickened and irregular ciliary region a thick pseudo-membrane stretched unbroken transversely through the globe. When it was incised, serous fluid escaped. Dr. Knapp remarked that this condition was not rare in old degenerative process of the eyeball. The most remarkable feature in the case was the lighting up of sympathetic irritation by a congenitally-diseased eye after a quietude of thirty-seven years, during which time the morbid process, though steadily advancing, had caused no disturbance whatever.

CEREBRAL HEMORRHAGE.

Dr. FRANK FERGUSON presented the brain and spleen of a man who died three hours after transportation to the hospital by the ambulance. He was found comatose, the pupils contracted, the respiration stertorous. There was no elevation of temperature and no paralysis. As he had just before entered a drug-store for something to relieve pain in the abdomen, it was supposed he had obtained opium and had taken an overdose. The autopsy revealed a large hemorrhage into one of the cerebral ventricles; also a large infarction of the spleen, interstitial hepatitis, and diffuse nephritis. There was considerable hypertrophy of the left ventricular wall, with dilatation of the cavity; there was a large vegetation upon the cusp of the aortic valve, and a small ulcer on the mitral valve. The pulse had been 40 to the minute.

Dr. JACOBI remarked that the low pulse-rate should have excluded opium-poisoning from the diagnosis.

Dr. JOHN C. PETERS read a scientific communication from Dr. Middleton Goldsmith on gangrene, including some original experiments.

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

STATED MEETING, MAY 24, 1886.

The President, DANIEL LEWIS, M.D., in the chair.

DISEASE OF THE EAR IN CHILDHOOD.

DR. E. BENJAMIN RAMSDELL read the paper, which was prepared more for the purpose of calling the attention of the general practitioner to the importance of these cases than with the hope of instructing the specialist.

The importance of early attention to disease of the ear in childhood was apparent from a study of the anatomical relations of that organ.

Ninety per cent. of nearly four hundred cases of disease of the ear, at the Manhattan Eye and Ear Hospital, in children, were affections of the middle ear, and only one per cent. of the internal ear and auditory nerve, while nine per cent. were cases of disease of the external auditory canal.

Dr. Ramsdell narrated a number of cases of acute suppurative disease of the middle

ear in children seen in private practice, in all of which after some days of treatment the discharge ceased, the drum-membrane healed, and the patient's hearing became normal or markedly improved.

The treatment adopted consisted in cleanliness and astringents, together with attention to catarrh of the naso-pharynx. He had the ear douched with warm water two or three times a day with a fountain syringe; in some cases dropped into the ear ten or fifteen drops of a solution of peroxide of hydrogen; dried the ear with a piece of absorbent cotton on a probe; blew in a little iodoform, sufficient to form a thin film on the surface of the cavity, or, in some cases, powdered borax. Sometimes it was necessary to employ a solution of nitrate of silver or other astringent. If polypi existed, they were to be removed by the curette.

DISCUSSION.

Dr. D. B. St. John Roosa opened the discussion with an appeal to the profession for more general and early recognition and treatment of disease of the ear in childhood. Scarcely any organ in the body responded more readily to treatment, and none scarcely was more important to the individual. There might be slight variation in the treatment by different specialists, but all agree upon the importance of cleanliness and such astringents as the author had recommended, and this simple treatment was sufficient in most cases to cure the disease. As the author had said, the treatment was chiefly local. He did not approve of a method which some now employed, and which was as old as Hahnemann.

Dr. O. D. Pomeroy spoke a word in favor of the general practitioner, for, he said, it was extremely difficult to examine the ear of children and to see the drum-head; moreover, the disease after scarlet fever was often very rapid in its ravages, and offered no opportunity for treatment. Even in his own family he had overlooked acute otitis media until after the discharge had taken place, the patient being too small to make the nature of its sufferings known. It was a good rule, when a child complained without other apparent cause, to examine the ears for disease. He thought suppurative disease of the middle ear in children was less dangerous in proportion to its severity than in adults.

Dr. Simon Baruch thought one reason why so many cases of disease of the ear were overlooked until after discharge of pus was the fact that many began during the desquamative stage of scarlet fever, at a time when the physician had either relaxed his efforts or entirely ceased his visits. He now made it a custom to pull gently the little one's ears, and by other measures try to detect any signs of otitis during an attack of scarlet fever.

Dr. David Webster, in reply to the President, said that he thought iodoform could be dispensed with, as boric acid was equally beneficial.

As to the present means of inflating the middle ear in children, he said the Eustachian tube was patulous at this age, and by closing one nostril and blowing into the other air would surely enter the tube.

Dr. J. A. Andrews thought iodoform did harm in acute otitis, as it was irritating and did not dissolve. Tannic acid was also insoluble and useless. Boric acid was most beneficial.

Dr. Garrish thought constitutional measures were important, especially in scrofulous subjects. In addition to the douche, he employed hot poultices, and also leeches and an anodyne of tincture of opium and sweet oil.

Dr. Laurence Johnson mentioned an instance illustrating the value of such simple methods of treatment as had been adopted by the author of the paper. In an institution with which he was connected he gave instructions to the nurses to douche the ears of the children suffering from a chronic suppuration of the middle ear. His instructions were carried out with regard to the girls, and at the end of some days all manifested improvement; they were not carried out in the case of the boys, and at the end of the same time not one showed any improvement. He thought there was danger of using the douche too frequently and too long, which would have the effect of a continued poultice. He did not employ it until after the borax showed moisture.

Dr. Leszynsky related a case showing the difficulty of diagnosticating disease of the middle ear at an early date; the patient had shown symptoms of meningitis, and disease of the ear was not suspected until a discharge took place, after which the other symptoms disappeared. In another case there was no response to constitutional treatment until after local treatment had been employed.

Dr. Messenger had made it a rule to treat his own cases, not to send them to the specialist, and he was convinced that if all physicians would adopt such simple measures as had been recommended to-night there would be fewer cases of deaf-mutism and suppurative inflammation of the ear. He condemned iodoform as being worse than useless. He had obtained benefit from cocaine in some cases of ear-disease in the adult. He paid particular attention to the patient's general condition, and said that children would recover from almost any disease if they had proper feeding.

Dr. Holcombe had been astonished at the author's success in healing the drum-head after opening from suppurative inflammation. He found an effectual method of cleansing the ear of pus in the use of a long rubber tube, drawing the pus into the tube by in-

spiration. Its entrance into the mouth was guarded against. He thought there was danger of doing harm with the syringe and with inflation carelessly performed.

He claimed to be the first to prove the tolerance of strong solutions of nitric acid applied to the ear, and also to have introduced the cotton probe.

Dr. RAMSDELL closed the discussion, after which the Society adjourned until the fourth Monday in September.

NEW REMEDIES AND CLINICAL NOTES.

DERMATITIS FEROX.—J. L. Milton describes a rare form of skin-disease in the *Edinburgh Medical Journal* for March. "The outbreak of this affection seems in every instance to take the form of one or more scattered patches on the face, hands, or upper part of the chest, and sometimes on all three together. The patches, at first only reddish, speedily become of a vivid red (lake), and then red mixed with brown, the cuticle turning dry and crumpled, and then peeling off, to be replaced by another layer, which in its turn shares the same fate. Now and then a small part of a patch may ulcerate, but this is an extremely rare complication, and usually the morbid state disappears by the gradual declension of the redness and slow reproduction of unhealthy cuticle, which is also little by little replaced by a more normal covering. There is usually no discharge, nothing in the shape of a scurf or crust. The patches, as a rule, form very slowly, and it is only after a time, and when they have become rather extensively developed, that the health begins to suffer; but in other cases a difference in the process may be noticed in so far that the eruption takes place rather quickly, and that the health fails within a few days after its appearance. Sometimes, when the disease attacks the side of the face in the male, firm crusts will form, so that at the end of a week the case looks like one of rather advanced erythematous sycosis. Such crusts may crack, and under the lens small spots can be seen, which look as if thick serum were exuding from them, but in the early stages at least there is no weeping, as in eczema. The site of each crust is surrounded by a red inflamed ring, much broader than is seen round a sycosis patch, which is also infinitely slower in forming. In every case which has yet come under my care the affection of the skin has shown itself first, and the constitutional disturbance later, sometimes much later.

"The patches are in general quite isolated, and at first not very large, the predominating shape, if anything with such an irregular outline can be said to have a shape at all, being a ragged oval. Usually they are, as stated, of a lake color, and this seems to betoken a milder phase; in two cases, where the hue might very fitly have been compared to carmine, the constitutional disturbance was out of all proportion to the extent of skin affected. After a time, and particularly when they are seated on the face, two or more patches gradually fuse, and take on a dark, angry hue, which gives the part the look of having been burnt with fire. Now and then they assume a papular form, and then resemble flattened, aggregated lichen spots; these appear to be overlaid by a cuticle not unlike the horny covering of lichen. On other patches the cuticle, after taking on a brown crumpled look, is cast off, as in the rising stage of eczema. In a third set of patches the scarf-skin may be fairly adherent.

"The constitutional symptoms point to much and often grave disturbance of the health. General uneasiness, feeling of being unwell, sometimes of the system having taken the alarm, loss of appetite, nausea, headache, inability to walk straight, and prostration, are, perhaps, the most prominent and frequent among the many signs which arrest the attention of the practitioner.

"It will thus be seen that, while the affection in some features resembles acrodynia and erysipelas, it is yet distinct from both. It runs a much slower course than either, and in it the constitutional symptoms come on much later. The phlyctænæ, pustules, œdema, and perspirations of the former are wanting. When it attacks the face it is accompanied by none of the swelling and closing of the eyelids which so distinctly mark erysipelas. It is sometimes attended, too, by the formation of huge bullæ at a distance from the chief site of active disease. Though, perhaps, in this complaint the skin is just as much poisoned by the air as it is by the aniline and arsenic dyes in a case of glove or sock poisoning, yet we do not find the sudden swelling, heat, tenderness, and subsequent discharge of serum seen in the latter affection. On the contrary, every one of these symptoms may be absent; indeed, redness and exfoliation are usually the sole local signs. But, while I never saw much internal disturbance, and particularly internal disturbance culminating in delirium, from the aniline dye affection, I have met with both under a very pronounced form in this kind of dermatitis. And no form of poisoning of the skin which I have either read of or seen, or any variety of erysipelas known to myself, is ever followed, as dermatitis ferox sometimes is, by a raised, fused, red, papular eruption. For all such reasons the latter seems to me a distinct individual complaint."

TWO CASES OF EXTIRPATION OF INTRACRANIAL TUMORS.—The first case operated on was successful, by Durante, as translated from *Bull. della Reale Accad. Med.* (by F. R.

Campbell, M.D., *Buffalo Med. and Surg. Journ.*). Patient, male, age 35 years, constitution good. The left eye projected from the orbit and turned out: this change had begun three months before. The patient complained of gradual loss of smell and memory, with a feeling of emptiness in the head. Motion and sensation were unchanged, as were the hearing, taste, and digestive functions. From these symptoms Durante diagnosticated intracranial tumor pressing on the olfactory nerves, anterior lobes of the brain, and penetrating the orbital cavity through its roof. An incision was made from the inner angle of the left eye towards the left to the hair; the flap of skin was turned down, and a portion of bone was removed from over the orbit about two inches square. On removal of the inner table, the tumor was removed and drawn out. Its pedicle was attached to the dura mater of the left lobe. A prolongation of the tumor had extended into the ethmoidal cells, and also had depressed the roof of the orbit without descending into it, and had compressed the anterior lobe of the cerebrum. The tumor, a sarcomatous growth about the size of a small apple, was removed, and, on the fifteenth day following operation, the patient was discharged cured.

Another case of tumor of the brain partially extirpated is reported by Dr. Hirschfelder (*Pacific Med. and Surg. Journal*). Patient a German, age 33 years, personal family history good. Symptoms were as follows: headache, vertigo, vomiting, unilateral paralysis, and atrophy of the optic nerves. Epileptic and epileptiform convulsions occurring without loss of consciousness indicated a cortical seat of the growth. It seemed evident that the motor centres around the sulcus Rolando on the right side were the seat of the growth, from the fact that the face, arm, and leg centres apparently were affected. It having been found that the seat of sensation exists in the parietal lobes of the brain, and since anæsthesia existed in this case on the left side of the face, the neoplasm was located in the middle part of the gyrus postcentralis. Dr. Moore operated February 15, 1886, with the trephine, making an opening of three inches across the skull. The dura mater was tense and white at the posterior part of the wound. Here, on palpation, it was found more dense and prominent. The dura mater was slit open on a grooved director and a mass of gliomatous tissue was removed, about two and a half cubic centimetres in size. Blood, broken-down tissue, and gliomatous material continued to exude, and, finally, the patient died on February 23, 1886. A post-mortem was not allowed. The intimate connection which existed between the gliomatous and brain tissue in this case prevented a successful operation.

TRANSFUSION IN TYPHOID FEVER.—A case of typhoid fever successfully treated by transfusion is reported by Dr. William S. Whitwell in the *Pacific Med. and Surg. Journal* (April). On August 26, patient had a fever-temperature of 102½°–103° F., and had two bloody stools. The temperature was registered as normal on August 31, and the patient seemed to be getting on well until September 5, when temperature again rose to 102° F., and on September 8 it rose to 106° F. Ice was then applied to the head, and quinine and antipyrine were given in twenty-grain doses per rectum. The temperature ranged between 103° and 106° from the above date till September 14. Decided abdominal swelling, subsultus tendinum, and irregularity of pupils indicated the gravity of the case. On September 14 consolidation of left lung developed, which was dissipated by a jacket-poultice and small doses of digitalis. During the eve of the 15th and morning of the 16th there were three small stools mixed with blood. On the 18th there were three similar stools. Murchison's treatment to stop the hemorrhage was tried (tannic acid, turpentine, and chloroform). On the 19th there was a large stool mixed with blood, with a fall in the temperature of two degrees. On the morning of the 21st Dr. W. was summoned for a severe hemorrhage, and by the time of his arrival another had taken place. The patient was much exhausted, respirations rapid, pulse over 100, and body cold. Later, two more bloody stools were passed. The amount of blood lost on this occasion was about eighteen ounces. With the aid of Drs. A. P. Whitwell and C. Max Richter, a saline solution was injected into the median vein of the left arm to the amount of fifteen ounces, when it had to be stopped on account of the utter collapse of the patient. This was overcome by whiskey, which strengthened the pulse at the wrist somewhat, but still death seemed imminent. Dr. Whitwell then determined to transfuse blood in its entirety, and with a simple Aveling's apparatus six ounces of blood were injected from the nurse into the patient. Again the distress of the patient was very great, but the pulse was sustained. Ergotin was injected over the abdomen. This injection (fifteen grains of Bonjean's ergotin) was repeated, twenty minims of McMunn's elixir was given, and strong black coffee was administered to the patient each half-hour till the body became warm and dry. On September 22 the temperature registered 101¾° F., and on the 26th a bronchitis sent the temperature up to 104½° F.; but upon this date convalescence set in, and October 4 the temperature was normal.

MECHANICAL DEVICE TO PREVENT SNORING.—The traditional Yankee clothes-pin not having met with much favor, although often recommended to cure snoring, an ingenious Englishman has recently invented an elastic bandage to keep the mouth closed during sleep.

MISCELLANY.

THE ASSOCIATION OF AMERICAN PHYSICIANS.—Pursuant to announcement, the first meeting of the "Association of American Physicians" (limited) was held in Washington, D.C., June 17 and 18, 1886. Francis Delafield, M.D., of New York, was chosen President. The subject of the President's Address was "Chronic Catarrhal Gastritis."

The first paper was on the "Tendon-Jerk and Muscle-Jerk in Disease, especially with reference to Posterior Spinal Sclerosis," by Drs. S. Weir Mitchell and M. J. Lewis, of Philadelphia.

F. Peyre Porcher, M.D., of Charleston, South Carolina, read a paper on "Typhoid Fever."

The discussion of the question, "Does the present state of knowledge justify a clinical and pathological correlation of rheumatism, gout, diabetes, and chronic Bright's disease?" was opened by Drs. James Tyson and William H. Draper.

Dr. James T. Whittaker read an interesting paper on "Spasm of the Glottis in Rickets."

"Notes on some Cases of Diaphragmatic Pleurisy" was read by Dr. E. T. Bruen, of Philadelphia.

Dr. T. Mitchell Prudden, of New York, gave a demonstration of bacterial cultures from a case of mycotic endocarditis in man, and of specimens showing the experimental production of the disease in man.

On the second day, Dr. W. F. Councilman, of Baltimore, read a paper on "Certain Elements of the Blood of Malarial Fever;" Dr. H. W. Lyman, of Chicago, read a paper on "Tetany;" Dr. R. H. Fitz, of Boston, contributed an essay on "Perforating Inflammation of the Vermiform Appendix, with Special Reference to its Early Diagnosis and Treatment;" Dr. William H. Polk, of New York, one on "Peri-Uterine Inflammation;" Dr. William H. Welch, of Baltimore, "An Experimental Study of Glomerulo Nephritis;" Dr. William Osler, of Philadelphia, "On the Bicuspid Condition of the Semilunar Valves and its Relation to Aortic Valve Disease;" Dr. George M. Sternberg, U.S.A., "On the Bacillus of Typhoid Fever;" Dr. E. C. Seguin, of New York, "A Clinical Report of Nine Cases of Hemianopsia;" Dr. H. Formad, of Philadelphia, showed specimens of "Cyanotic Induration of the Kidneys." A number of papers were read by title. Some of the discussions were of unusual interest.

The officers elected for the ensuing year are as follows: *President*, Dr. S. Weir Mitchell, Philadelphia; *First Vice-President*, Dr. Francis Minot, of Boston; *Second Vice-President*, Dr. R. Palmer Howard, of Montreal; *Secretary*, Dr. George L. Peabody, of New York; *Recorder*, Dr. James T. Whittaker, of Cincinnati; *Treasurer*, Dr. W. W. Johnson, of Washington; *Council*, Dr. William H. Draper, of New York; Dr. Robert T. Edes, of Boston; Dr. H. M. Lyman, of Chicago; Dr. Samuel C. Busey, of Washington; Dr. Frederick C. Shattuck, of Boston; Dr. William Osler, of Philadelphia; and Dr. W. W. Welch, of Baltimore.

The proposition with reference to the formation of the Congress of American Physicians and Surgeons was presented and approved. The following committee was appointed to confer with other organizations: Dr. William Pepper, Philadelphia; Dr. Robert T. Edes, Boston; Dr. R. P. Howard, Montreal; Dr. James T. Whittaker, Cincinnati; and Dr. Francis Delafield, New York.

COMPLIMENTARY DINNER TO PROFESSOR PANCOAST.—On the 17th instant a complimentary dinner was given to Professor William H. Pancoast, at the Hotel Bellevue, by his personal friends in the Alumni Association of Jefferson College and others of the medical profession of this city, at which law, divinity, and journalism were also represented. Dr. Addinell Hewson presided at the table, and Dr. Thomas H. Andrews was toast-master. A number of invited guests from distant cities were present, among whom were Dr. William Brodie, of Detroit, Michigan, ex-President of the American Medical Association; Dr. Traill Green, of Easton, Pennsylvania; Dr. Robert Neumann, of New York; Dr. A. N. Bell, of Brooklyn; Drs. George H. Rohé and J. W. Chambers, from Baltimore; and J. N. Quimby, of Jersey City. The entire number present was one hundred and sixty-two. The occasion was the retirement of Professor Pancoast from the Chair of Anatomy in the Jefferson College. In his remarks acknowledging the honor, the guest of the evening said that he had been connected with Jefferson College for twenty-seven years as Demonstrator, Assistant Professor, and member of the Faculty, and still cherished warm regard for an institution to which his father had been attached for many years before him. He announced that he had accepted the Chair of General Descriptive and Surgical Anatomy and Clinical Surgery in the Medico-Chirurgical College of Philadelphia, an institution which is working out the problem of higher medical education by establishing preliminary examinations and a three years' graded course. This College, he said, had just purchased a commodious property near the centre of the city, and when the alterations were completed the Philadelphia Dental College, the Charity Hospital, the Hospital for Skin-Diseases, and the School of Anatomy would unite with the Medico-Chirurgical Hospital and College in furthering the great and important work in which they are engaged.

Addresses were also made by Professor Henry H. Smith, J. P. Handy, J. McKeehan, Esq., Mr. Riggs, of Delaware, Prof. Garretson, and others.

It was announced that Dr. John V. Shoemaker had accepted the Chair of Dermatology, and Dr. E. E. Montgomery the Chair of Gynæcology, in the Medico-Chirurgical College. A number of addresses were made and the best spirit was manifested. The dinner was very successful, and there has been nothing like it in this city since the dinner given to Professor Gross upon the completion of his fifty-first year of active practice by the members of the profession in 1879.

THE MEDICAL SOCIETY OF THE STATE OF NEW JERSEY met at Sea Girt, New Jersey, June 8 and 9, 1886, in its One Hundred and Twentieth Annual Convention. Dr. Joseph Parrish, of Burlington, presided. He took for the topic of his annual address the "Geography of Malaria."

The following are the officers for 1886–87:

President, C. J. Kipp; Vice-Presidents, J. W. Ward, H. G. Taylor, and B. A. Watson; Corresponding Secretary, William Elmer; Recording Secretary, William Pierson; Treasurer, W. W. S. Phillips; Standing Committee, T. J. Smith, E. S. Marsh, D. C. English.

Next place of meeting, Beach Haven, New Jersey, in June, 1887.

On motion of Dr. Benjamin, the Society adopted the following motion:

"*Resolved*, That the Medical Society of the State of New Jersey recommends only such colleges as require preliminary examination and a three years' graded course of study."

A resolution was also adopted re-affirming the value of experimental research, and opposing attempts of Societies for the Prevention of Cruelty to Animals to restrict vivisection.

Dr. BENJAMIN H. BRIGGS, Selma, Alabama, writes that "Colden's Liquid Beef Tonic" is an excellent preparation, the composition of which is known, and one that physicians can intelligently prescribe. He has found it of great service in his practice.

NOTES AND QUERIES.

A NEW REMEDY FOR RHUS-POISONING.

MR. EDITOR,—As the warm weather approaches and a great number of the population are about to betake themselves to the rural districts, there will shortly appear the usual periodical cases of rhus-poisoning. Having been a sufferer myself, I desire to call the attention of the profession to a remedy which I have found very efficacious, and which in my hands has heretofore proved to be *the* remedy in every instance. Having tried almost everything recommended, with no avail, I finally applied a *saturated solution of oxalic acid*, which dried up the vesicles in less than an hour and prevented a further spread of the disease.

In practice I apply the solution with a camel's-hair brush, using extreme caution, when the eruption is on the face, to protect the eyes. I usually apply it a little beyond the margin of the affected part, thus preventing the trouble spreading.

THOMAS B. MCBRIDE, M.D.
2022 SUSQUEHANNA AVENUE.

A CORRECTION.

THE Secretary of the College of Physicians, Dr. Isaac Norris, Jr., writes that the censorship of papers proposed to be read has not yet been adopted by the College.

OFFICIAL LIST

OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT U.S. ARMY FROM JUNE 6, 1886, TO JUNE 19, 1886.

MAJOR BLENCOWE E. FEVER, SURGEON.—Sick-leave of absence still further extended six months on surgeon's certificate of disability. S. O. 131, A. G. O., June 7, 1886.

MAJOR HENRY R. TILTON, SURGEON.—Ordered for duty as post-surgeon, Presidio of San Francisco, California. S. O. 38, Department of California, June 1, 1886.

MAJOR J. S. BILLINGS, SURGEON.—Granted two months' leave of absence, with permission to go beyond sea, to take effect July 9, 1886. S. O. 138, A. G. O., June 16, 1886.

MAJOR WILLIAM E. WATERS, SURGEON.—Ordered from Department of the East to Department of the Columbia.

CAPTAIN JAMES C. MERRILL, ASSISTANT-SURGEON.—Ordered from Columbus Barracks, Ohio, to Department of the Columbia, to take effect upon the expiration of his present leave of absence.

CAPTAIN SAMUEL Q. ROBINSON, ASSISTANT-SURGEON.—Ordered from Department of the Columbia to Department of Texas.

FIRST-LIEUTENANT WILLIAM O. OWEN, ASSISTANT-SURGEON.—Ordered from Department of the Columbia to Department of the East.
S. O. 133, A. G. O., June 10, 1886.

CAPTAIN J. V. LAUDERDALE, ASSISTANT-SURGEON.—Ordered for duty as post-surgeon at Fort Concho, Texas. S. O. 70, Department of Texas, June 12, 1886.

CAPTAIN EDWARD T. COMEGYS, ASSISTANT SURGEON.—Ordered for duty as post-surgeon at Madison Barracks, Sackett's Harbor, New York. S. O. 60, Division of the Atlantic, June 15, 1886.

CAPTAIN W. F. CARTER, ASSISTANT-SURGEON.—Ordered for duty (temporary) at Fort Concho, Texas. Paragraph 2, S. O. 55, Department of Texas, c. s., granting Assistant-Surgeon Carter leave of absence for one month, is revoked. S. O. 64, Department of Texas, June 1, 1886.

FIRST-LIEUTENANT C. S. BLACK, ASSISTANT-SURGEON.—Ordered for duty at Fort Stockton, Texas. S. O. 64, Department of Texas, June 1, 1886.

FIRST-LIEUTENANT C. S. BLACK, ASSISTANT-SURGEON.—Ordered from Fort Stockton, Texas, to Fort Clark, Texas. S. O. 69, Department of Texas, June 11, 1886.

LIST OF CHANGES IN THE MEDICAL CORPS OF THE U.S. NAVY FROM JUNE 6, 1886, TO JUNE 19, 1886.

PASSED ASSISTANT-SURGEON R. SWAN.—Detached from "Brooklyn" and wait orders.

PASSED ASSISTANT-SURGEON P. A. LOVERING.—Detached from Navy Yard, New York, and ordered to "Brooklyn."

PASSED ASSISTANT-SURGEON GEORGE ARTHUR.—Ordered to Navy Yard, New York.

PASSED ASSISTANT-SURGEON C. W. RUSH.—Detached from the "Franklin" and ordered to the "Brooklyn."

SURGEON J. A. HAWKE.—Detached from the "Wabash" and ordered to the "Essex," July 1.

SURGEON HOWARD SMITH.—Ordered to the "Wabash."

LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U.S. MARINE HOSPITAL SERVICE FOR THE THREE WEEKS ENDING JUNE 14, 1886.

PASSED ASSISTANT SURGEON F. W. MEAD.—Granted leave of absence for twenty days, June 9, 1886.

PASSED ASSISTANT-SURGEON JOHN GUITÉRAS.—Granted leave of absence for thirty days, June 14, 1886.

ASSISTANT-SURGEON R. B. WATKINS.—Granted leave of absence for thirty days, June 4, 1886.

ASSISTANT-SURGEON W. J. PETTUS.—To proceed to Charleston, South Carolina, for temporary duty, June 11, 1886.